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the

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of the association for physical and mental rehabilitation

MAY-JUNE. 1955 VOL. 9. No. 3

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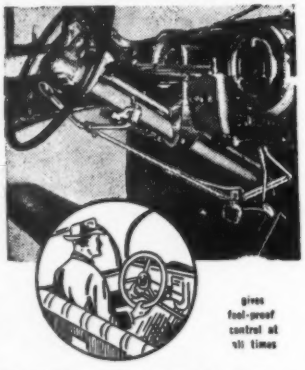

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THE JOURNAL OF THE ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

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MANUSCRIPT: Manuscripts should not exceed ten (10) typewritten pages; approximately 5,000 words. Manuscripts must be the original copy, not a carbon, typed double-spaced with margins of one (1) inch for large type and one and a half (1½) inches for the small.

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GREETINGS FROM CONVENTION HEADQUARTERS

BOSTON, MASSACHUSETTS

Welcome to historic Boston, "The Hub of the Universe".

The city of Boston, the Birthplace of American Liberty, extends a most cordial welcome to the members of the Association for Physical and Mental Rehabilitation and to your families, friends, and guests. The city and hotel officials have cooperated graciously with the Conference Committee to make this Ninth Annual Conference both a professional and social success.

Considered one of the world's famous hotels, the Sheraton Plaza is located at Copley Square in the Back Bay section, only a short distance from the Public Garden and Boston Common. Guests' rooms are comfortable and luxurious, and the renowned Merry-Go-Round is a unique lounge available for relaxation and fellowship.

Whether you travel by plane, train or car, Boston is easily accessible. Route 9, the main highway into the city from the west and south, leads directly to the hotel. Rail connections from the major cities will bring you to Back Bay Station, only a block from the Sheraton Plaza.

The Ninth Clinical Conference has been planned to provide an instructive and interesting program for all persons in the field of rehabilitation. One of the great medical centers of the world, Boston provides leaders in medical teaching through its many universities and medical centers. Symposia and panel type discussions will be utilized to provide an opportunity for members to question the speakers and receive practical information from the presentations.

Administrative meetings will be held June 26 with the clinical sessions starting Monday afternoon, June 27, and concluding at noon, Friday, July 1. The daily sessions have been planned to provide some leisure time for the delegates.

A new feature of this conference will be the presentation of a series of papers by members of the association. Scheduled for Friday morning, these papers will cover many phases of the corrective therapy program from the practical level of the therapist in the field.

Several prominent manufacturers and distributors of physical medicine and rehabilitation equipment will exhibit their products. Time has been provided to enable you to observe these demonstrations and become acquainted with the companies' representatives. Available to show you the latest developments in rehabilitation devices and aids, these exhibitors provide an important conference function.

Many scientific exhibits will be presented by allied organizations to further demonstrate the complete rehabilitation program and the unanimity of purpose of the various agencies.

We urge you to have your family accompany you to this conference. An excellent program has been scheduled which will permit the children to re-live colonial history along the Freedom Trail. There is no charge for children at the hotel, and we are certain the wives will enjoy the hospitality and activities planned for them.

The conference theme, "Rehabilitation—An Educational Challenge", will be evident throughout the conference. We believe that the therapist, as well as leaders of medical education are faced each day with a challenge to teach and educate those with whom they come in contact as to the concept of total rehabilitation and what it means to the patient, the family and the public.

The officers and committeemen feel they have planned a conference which will be of great value to you and to the Association. The only ingredient needed to insure the success of the conference is your attendance. Plan now to join us in Boston from June 27 through July 1.

FRANK S. DEYOE,
CONFERENCE CHAIRMAN

GENERAL INFORMATION

REGISTRATION: Registration will begin at 9:00 a.m., Monday, June 27, 1955. The registration desk will be located in the concourse of the Sheraton Plaza. The conference registration fee is $10.00, which includes the cost of the banquet. Registration fee for single days is $1.00, and includes both morning and afternoon sessions. Students will be registered with no charge upon presentation of their student identification card.

BADGES: All members, guests and visitors will be required to wear the appropriate official conference badge for admission to the conference assembly room. Those attending single sessions will be provided with an appropriate badge at the time of registration. All speakers and guests are requested to register, at which time they will be issued an official badge admitting them to all sessions.

HOTEL RESERVATIONS: Ample hotel reservations should be available at the headquarters hotel. Those attending the conference will find that the Sheraton Plaza will offer the best in accomodations at rates which compare favorably with any in the city. Anyone without hotel reservations should inquire at the registration desk.

BANQUET: All members and guests attending the conference are invited to attend the banquet on Thursday evening, June 30, 1955 at 7:00 p.m. The Committee has been fortunate in obtaining as banquet speaker Mr. Harold Russell, popular star of the movie, "The Best Years Of Our Lives", and vice-chairman in charge of rehabilitation for the World Veterans Federation. Members will obtain their tickets at the time of registration, as the cost of the banquet is included in the registration fee of $10.00. Visitors may obtain banquet tickets at the registration desk.

COMMERCIAL EXHIBITS: Commercial exhibits will be located in the Hub Room, immediately adjacent to the Oval Room where the scientific sessions will be held. All those attending the conference are urged to visit these exhibits. A wide variety of rehabilitation equipment will be displayed, and should be of considerable interest to those attending.

SCIENTIFIC EXHIBITS: The scientific exhibits will be located in the Oval Room and Hub Room. There has been an excellent response reported by the Scientific Exhibit Committee, and all attending should find these exhibits both interesting and informative.

ENTERTAINMENT: Boston offers much in the way of entertainment and interest for those attending the conference. The Social Committee will have information for members, guests and their families that will assist you in selecting activities and in sightseeing. Some activities have been definitely scheduled, while others, the Pops concert for example, are optional.

BUSINESS MEETINGS — Hotel Sheraton-Plaza, Boston

Saturday, June 25

10:30 - 12:00 Noon. MEETING OF THE EXECUTIVE BOARD.
1:00 - 5:00 P.M. MEETING OF THE BOARD OF GOVERNORS.

Sunday, June 26

9:00 - 12:00 Noon. MEETING OF THE BOARD OF GOVERNORS.
1:00 - 5:00 P.M. MEETING OF THE BOARD OF GOVERNORS. (Cont'd)

Monday, June 27

1:00 - 5:00 P.M. MEETING OF THE BOARD OF GOVERNORS.

Tuesday, June 28

7:30 - 10:00 P.M. MEETING OF GENERAL ASSEMBLY (Annual Election of Officers)

TENTATIVE PROGRAM

NINTH ANNUAL SCIENTIFIC AND CLINICAL CONFERENCE

Association for Physical and Mental Rehabilitation

Sheraton Plaza Hotel, Boston, Massachusetts

June 27 through July 1, 1955

CONFERENCE THEME: "Rehabilitation – An Educational Challenge."

MONDAY—June 27

9:00 A.M.—10:15 A.M.—Mayor's Breakfast—Board of Governors, Past Presidents of Association for Physical and Mental Rehabilitation.

9:00 A.M.— 5:00 P.M.—Registration.

10:30 A.M.—12 Noon—Meetings, Board of Governors, Executive Board.

12:00 Noon— 1:00 P.M.—Luncheon.

CHAIRMAN FOR DAY: Chris Kopf—Past President, APMR.

1:00 P.M.—1:30 P.M.—Exhibits.

1:30 P.M.—2:30 P.M.—Panel: A DRIVING PROGRAM FOR DISABLED PERSONS.

Chairman—R. R. Gasser, M.D., Manager, West Roxbury V.A. Hospital.

REPORT ON THE DRIVING PROGRAM FOR THE DISABLED IN THE COMMONWEALTH OF MASSACHUSETTS—Col. William F. Bench, Supervisor of Veterans' Facility and the Handicapped, Mass. Registry of Motor Vehicles.

DEVELOPMENT OF THE DRIVER TRAINING PROGRAM AT WEST ROXBURY V.A. HOSPITAL—Thomas Rowley, Driver Training Instructor, Corrective Therapy Section.

THE PSYCHOLOGICAL AND ECONOMIC VALUE OF DRIVING FOR THE DISABLED—William Fitzgerald, Jr. Ph.D., Staff Psychologist, Bay State Rehabilitation Center.

2:30 P.M.—3:00 P.M.—NEW TECHNIQUES IN TRAINING THE BLIND—Reverend Thomas J. Carroll, Director of Catholic Guild for the Blind, Newton, Mass.

3:00 P.M.—3:30 P.M.—Exhibits.

3:30 P.M.—4:45 P.M.—Panel: NEW HORIZONS IN THE DEVELOPMENT OF A PROGRAM DESIGNED FOR TREATMENT OF TB-NP PATIENTS.

Chairman: Jacob L. Rudd, M.D., Chief, PMRS, Brockton V.A. Hospital.

CURRENT TRENDS IN THE MEDICAL TREATMENT OF TUBERCULOSIS—Emil Rothstein, M.D., Chief Tuberculosis Service, Brockton V.A. Hospital.

PSYCHIATRIC ASPECTS IN THE TREATMENT OF TB—NP PATIENTS—Charles Taffel, Ph.D., Chief Psychology Unit, TB-NP Service, Brockton V.A. Hospital.

DEVELOPMENT OF A CORRECTIVE THERAPY PROGRAM FOR TB-NP PATIENTS AT BROCKTON V.A. HOSPITAL—Kenneth Dening, Chief, C.T., Brockton V.A. Hospital.

TUESDAY—June 28

CHAIRMAN FOR DAY: Sam Boruchov—Past President, APMR.

9:45 A.M.—11:30 A.M.—Panel: A THERAPEUTIC AQUATICS PROGRAM.

Chairman—Wesley G. Woll, Jr., M.D., Chief, PMRS, Lemuel Shattuck Hospital, Boston.

RATIONALE FOR THE USE OF UNDERWATER EXERCISE PROGRAMS—Arthur S. Abramson, M.D., Chief, PMRS, Bronx V.A. Hospital, N. Y.

THE UTILIZATION OF THERAPEUTIC POOLS IN THE TREATMENT OF ORTHOPEDIC DISABILITIES—Major Henry Rockstroh, MSC, Fort Sam Houston, Texas.

A THERAPEUTIC POOL PROGRAM FOR ACUTELY DISTURBED PSYCHOTIC PATIENTS—William E. Cully, Chief, Corrective Therapy, V.A. Hospital, Coatesville, Pa.

11:30 A.M.—12:00 A.M.—Exhibits.

12:00 Noon—1:30 P.M.
GOVERNOR'S LUNCHEON
(By invitation) State Suite, Sheraton Plaza Hotel

1:30 P.M.—2:30 P.M.—OPENING OF CONVENTION. INVOCATION—Rt. Rev. Daniel T. McGolgan, Ph.D., Executive Director, Nazareth.

WELCOME—Conrad Wesselhoeft, M.D., President, Massachusetts Medical Society.

Fritz Friedland, M.D., President, New England Society of Physical Medicine.

RESPONSE—Louis Mantovano, President, Association for Physical and Mental Rehabilitation.

KEYNOTE ADDRESS—REHABILITATION: AN EDUCATIONAL CHALLENGE—Sumner D. Whittier, Lieutenant Governor of Massachusetts.

2:30 P.M.—2:45 P.M.—Exhibits.

2:45 P.M.—4:00 P.M.—Symposium: AN INTEGRATED APPROACH TO THE TREATMENT AND REHABILITATION OF RHEUMATOID ARTHRITIS.

William J. Schriber, M.D., Chief, PMRS, Beth Israel Hospital, Boston; Assistant in Medicine, Harvard University Medical School.

Theodore Potter, M.D., F.A.C.S., Visiting Orthopedic Surgeon, Robert B. Brigham and Massachusetts Memorial Hospitals; Instructor in Orthopedic Surgery, Boston University School of Medicine.

J. Sydney Stillman, M.D., Chief of Medical Service, Robert B. Brigham Hospital and Instructor in Medicine, Harvard University School of Medicine.

FUNCTION OF ANCILLARY THERAPIES IN TREATMENT OF RHEUMATOID ARTHRITIS.

Sherrod Shaw, Physical Therapist, Liberty Mutual Insurance Co.

Alfred B. Ellison, Chief, Corrective Therapy, Jamaica Plain V.A. Hospital.

Bruce Fessenden, O.T.R., Brockton V.A. Hospital, Mass.

4:00 P.M.—5:00 P.M.—Panel Discussion: NEW SOMATIC THERAPIES IN PSYCHIATRY AS RELATED TO CORRECTIVE THERAPY.

Moderator: Delilah Reimer, M.D., Chief, PMRS, Bedford V.A. Hospital, Mass.

THE CONTRIBUTION OF NEW DRUGS TO A THERAPEUTIC MILIEU—Sidney Greenblatt, M.D., Director of Research, Boston Psychopathic Hospital.

IMPLICATIONS OF THE NEW SOMATIC THERAPIES FOR EXERCISE THERAPY—Walter E. Barton, M.D., Superintendent, Boston State Hospital.

7:00 P.M.
GENERAL ASSEMBLY: Election of Officers (Limited to active members of the Association for Physical and Mental Rehabilitation).

WEDNESDAY—June 29

CHAIRMAN FOR DAY: Leo Berner, Past President, APMR.

9:30 A.M.—10:30 A.M.—Report of: CATATONIC RESEARCH PROJECT.

Moderator: Charles W. Scully, Executive Assistant, PMRS, Brockton V.A. Hospital.

SELECTION OF THERAPIST—Carl Alsberg, Assistant, Research Unit, Corrective Therapy Section, Chillicothe V.A. Hospital, Ohio.

EMOTIONAL TENSION AS AN AUTISTIC BARRIER BETWEEN PATIENT AND ENVIRONMENT—Paul E. Roland, Chief, Research Unit, Corrective Therapy Section, Chillicothe V.A. Hospital.

10:30 A.M.—11:30 A.M.—Panel Discussion: REHABILITATION OF PATIENTS WITH CARDIAC DISEASES.

Chairman: Bernard J. Doyle, M.D., Assistant Chief, PMRS, Jamaica Plain V.A. Hospital.

MEDCAL ASPECTS OF CARDIAC REHABILITATION—speaker to be announced.

EXERCISE THERAPY FOR PATIENTS RECOVERING FROM CARDIAC DISTURBANCES—Alfred Ebel, M.D., Assistant Chief, PMRS, Bronx V.A. Hospital, N. Y.

11:30 A.M.—12:00—Exhibits.

12:00 Noon—1:00 P.M.—Luncheon.

1:00 P.M.—2:30 P.M.—Panel Discussion: THE EFFECT OF PUBLIC LAW 565 ON THE EXPANSION OF THE FIELD OF REHABILITATION.

Chairman: Louis Mantovano, President, Association for Physical and Mental Rehabilitation.

THE ROLE AND TRAINING OF THE ANCILLARY THERAPIES FOR THE ACCOMPLISHMENT OF TOTAL REHABILITATION UNDER PUBLIC LAW 565—Vlad Ratay, Regional Representative, Dep't of Health, Education and Welfare, Office of Vocational Rehabilitation.

THE ROLE OF THE STATES TO INSURE THE SUCCESS OF PUBLIC LAW 565—E. B. Whitten, Executive Director, National Rehabilitation Association.

THE ROLE OF THE PRESIDENT'S COMMITTEE IN THE ADMINISTRATION OF PUBLIC LAW 565—K. Vernon Banta, Technical Advisor to the President's Committee on Employment of the Physically Handicapped.

PROBLEMS AND PLANS OF THE COMMONWEALTH OF MASSACHUSETTS IN THE ACCOMPLISHMENT OF THE OBJECTIVE SET FORTH BY PUBLIC LAW 565—Edward D. Callahan, Director of Vocational Rehabilitation, Dep't of Education, Commonwealth of Massachusetts.

Discussion and question period.

2:30 P.M.—3:00 P.M.—Exhibits.

3:00 P.M.—5:00 P.M.—Presentation: REHABILITATION OF PATIENTS WITH SPINAL CORD LESIONS: Paraplegia and Quadriplegia.

John G. Bisgrove, M.D., Chief PMRS, West Roxbury V.A.

Bradford Cannon, M.D., Secretary, American Board of Plastic Surgeons.

Fritz Friedland, M.D., Chief, PMRS, Jamaica Plain V.A. Hospital.

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Herbert S. Talbot, M.D., Chief, Paraplegia Service, West Roxbury V.A. Hospital.

Members of the PMRS Staff, West Roxbury V.A. Hospital.

THURSDAY—June 30

CHAIRMAN FOR DAY: Thomas Fleming—Past President, APMR.

9:45 A.M.—11:30 A.M.—Panel: THE ECONOMICS OF REHABILITATION.

Chairman: William N. Lanigan, M.D. Orthopedic Surgeon, Medford, Mass.

Viewpoints:

INSURANCE COMPANY: Stanwood L. Hanson, Claims Vice-Chairman, Liberty Mutual Insurance Company.

STATE HOSPITAL: John J. Carroll, M.D., Superintendent, Mass. Hospital School for Crippled Children, Canton, Mass.

VETERANS HOSPITAL: Peter A. Peffer, M.D., Manager, Brockton V.A. Hospital, Mass.

INDUSTRY: Leslie E. Wood, Industrial Relations Director, Raytheon Manufacturing Co., Waltham, Mass.

LABOR: Julia O. Parker, Regional Office, American Federation of Labor, Boston, Mass.

Question and answer period.

11:30 A.M.—12:00 Noon—Exhibits.

12:00 Noon—1:00 P.M.—Luncheon.

1:00 P.M.—2:30 P.M.—Panel Discussion: PHYSICAL MEDICINE AND REHABILITATION—A PROGRESS REPORT.

Chairman: F. F. Schwartz, M.D., Medical Director, The Birmingham Institute of Physical Medicine and Rehabilitation, Birmingham, Ala.

VETERANS ADMINISTRATION: A.B.C. Knudson, M.D., Director, Physical Medicine and Rehabilitation Service, Veterans Administration.

VETERANS ORGANIZATION: T. O. Kraabel, Director, Rehabilitation Committee, American Legion.

CIVILIAN HOSPITAL: Joseph B. Rogoff, M.D., Director of Physical Medicine and Rehabilitation, Jewish Chronic Disease Hospital, Brooklyn, N.Y.

PHYSICAL MEDICINE ACTIVITIES OF THE ARMY MEDICAL SERVICE—Colonel Clark B. William, M.C.,

Chief, Physical Medicine Consultant, Professional Division, U.S. ARMY.

2:30 P.M.-3:00 P.M.—Exhibits.

3:00 P.M.-5:00 P.M.—Symposium: RESEARCH IN CORRECTIVE THERAPY: A CHALLENGE AND A RESPONSIBILITY.

Moderator: John E. Davis, Sc.D., Chief, Corrective Therapy, Veterans Administration.

RESEARCH METHODS AND PROBLEMS IN THE APPLICATION OF CORRECTIVE THERAPY FOR NP PATIENTS—Isidor W. Archerer, Ph.D., Chief, Clinical Psychology, V.A. Hospital, Northampton, Mass.

METHODOLOGY IN RESEARCH FOR GM&S PATIENTS RECEIVING CORRECTIVE THERAPY—Raymond A. Weiss, Associate Professor of Education, New York University.

ESSENTIAL AREAS FOR RESEARCH BY THERAPISTS—Paul Fleer, C.C.T., Rehabilitation Services, Inc. Binghampton, N.Y.

CORRECTIVE THERAPY AND THE HOME PROGRAM IN THE TREATMENT OF MULTIPLE SCLEROSIS (an original report), Stanley Wertz, Corrective Therapy Section, Kennedy V.A. Hospital, Memphis, Tenn.

CROSS TRANSFER EFFECT OF STRENGTH AND ENDURANCE (an original report)—Robert Kruse, Graduae Assistant, Springfield College, Mass.

Discussion period

7:00 P.M.—BANQUET
Invocation

Presentation of Awards

Presentation of Charters

Toastmaster—Francis B. Carroll, M.D., Area Medical Director, Veterans Administration

Speaker: Harold Russell—Vice President, World Veterans Fund, Member Board of Governors of the American Association for the United Nations, Inc.

Benediction: Dr. Hudson D. Howard—Director of Department of Institutional Ministry, Mass. Council of Churches

FRIDAY—July 1

9:45 A.M.

A PROGRAM OF PAPERS PRESENTED BY CORRECTIVE THERAPISTS

Moderator: John E. Davis, Sc.D.. Chief, Corrective Therapy, Veterans Administration.

A RATIONALE FOR CORRECTIVE THERAPY—John E. Davis, Sc.D.

WRESTLING AS A THERAPY FOR NEUROPSYCHIATRIC PATIENTS—Paul Mooney, C.T. Section, Togus V.A. Center, Maine.

USE OF THE KITCHEN CHAIR IN THE CORRECTIVE THERAPY HOME EXERCISE PROGRAM—Everett M. Sanders, Editor Emeritus, Journal of the Association for Physical and Mental Rehabilitation.

A CORRECTIVE THERAPIST'S TECHNIQUE IN CONDUCTING A MEDICALLY PRESCRIBED CORRECTIVE THERAPY PROGRAM IN AN OUT-PATIENT V.A. REHABILITATION CLINIC—Vincent T. McGrath, Chief, V.A. Regional Office, Philadelphia, Pa.

THE ROLE OF THE VOLUNTEER WORKER IN CORRECTIVE THERAPY—Charles Bader, Chief, C.T. Section, Togus V.A. Center, Maine.

SELF-AID DEVICES AND AN EVALUATION OF QUADRIPLEGIC HANDS—Vincent W. Anderson, C.T. Section West Roxbury V.A. Hospital, Mass.

A NEW TREATMENT FOR SCOLIOSIS—Franziska Schweitzer, New York, N.Y.

CORRECTIVE THERAPY TREATMENT FOR PARKINSONISM—Harold J. Brenner, C.T. Section, Sepulvida V.A. Hospital, Calif.

A STUDY OF CROSS TRANSFER OF MUSCLE STRENGTH AND ENDURANCE RESULTING FROM PROGRESSIVE RESISTIVE EXERCISE FOLLOWING INJURY—Karl K. Klein, Department of Physical Education, University of Texas.

THE VALUE OF THERAPEUTIC EXERCISE WITH SPECIAL REFERENCE TO ARTHROTOMIES OF THE KNEE—Oscar H. Ciner, Ed.D., C.T. Section, Bronx V.A. Hospital, N.Y.

OBSERVATIONS ON THE DEVELOPMENT OF A CORRECTIVE THERAPY PROGRAM FOR GERIATRIC PATIENTS—Robert Ness, C.T. Section, V.A. Hospital, Northport, L.I., N.Y.

GI TRAINING AT RECORD LEVEL

Veterans' enrollments under the three-year-old Korean GI Bill training program reached an all-time high of 587,000 in April, about 10 percent above the previous record of December, 1954, and nearly double the figure of a year ago, Veterans Administration announced May 2.

All forms of Korean GI training spurted ahead of record levels, VA said.

College enrollments rose to 325,000 on April 1 after a slight winter slump. This figure surpassed by 31,000 the former peak of 294,000 veteran college students at the close of 1954.

The number of GI students in schools below the college level shot up to a new high of 178,000 on April 1—14,000 above the December, 1954, total of 164,000.

On-the-job and on-the-farm enrollments—rising fairly steadily month after month—showed larger than average increases last month. Job training made its biggest spurt in three months, reaching a record 55,400 on April 1. The GI farm training increase was the largest in nine months, pushing the April 1 total to 29,000 veteran-farmers.

All in all, VA said, the Korean GI training program has been moving ahead steadily, with sharp upward surges each fall and spring.

The first surge began in the fall of 1952, shortly after the Korean GI Bill went in effect, and reached a peak of 131,000 veteran-trainees by the spring of 1953.

The next surge started in the fall of 1953, and continued to a climax in April, 1954, when 355,000 Korea veterans were enrolled in training. The numbers dropped off after that, as many veterans discontinued their courses for the summer vacation.

The third surge—the one that is now reaching its culmination—started to build up with fall enrollments of 1954, as tens of thousands of veterans poured into classrooms across the nation. By the end of the year, the total had reached 538,000—far above all previous records.

Then came a slight mid-winter drop in enrollment again to 532,000 at the end of February.

With the April 1 all-time record of 587,000 veteran-trainees, this third surge continued unabated, VA said.

SUTURING THE SCHIZOPHRENIC SPLIT*

RICHARD L. JENKINS, M.D.**

Advance in the therapy of schizophrenia has been handicapped by the lack of a satisfactory understanding, or even a satisfactory working hypothesis, of the nature of the disorder itself. The purpose of this paper is to discuss a working hypothesis and to consider its relation to methods of treatment known to be effective, as well as its possible implications for further or additional methods of treatment. The hypothesis arises in part from a synthesis of ideas borrowed from Hughlings Jackson with ideas borrowed from Eugen Bleuler. It was stimulated particularly by the frustration experiments conducted with rats by Maier[1] and by the results of the Veterans Administration lobotomy research project.[2,3,4,5]

Human evolution has been in large part a process of adding to the basic animal equipment and behavior higher mental processes centered in recently evolved and highly developed brain structures. In place of depending on the slow adaptation of the species through countless generations, man has evolved an unprecendented adaptiveness in the behavior of the individual. The newer centers have evolved to a high degree the capacity to learn and to control, direct, and inhibit behavior in the interest of long-term satisfactions, at some cost of denying immediate satisfaction to impulses. As is usually the case, the more recently evolved and highly developed structures are the more sensitive, the more easily disturbed. The social drinker depends on this fact to enjoy the freedom of a temporary release from the inhibition of his cortex by partly anesthetizing it with alcohol. The professional anesthetist carries the process a step further, for the relief of the patient and the convenience of the surgeon, by completely knocking out the functioning of the higher centers, while the respiratory center in the medulla continues its normal function.

Evolution toward flexible, adaptable behavior involves evolution away from patterns of behavior rigidly laid down by heredity, such as we see so highly developed among the insects. It evolves evolution toward more and more complicated and difficult choices between alternative patterns of behavior. The very existence of such alternative patterns immediately underlines a possibility of conflict, a possibility which is accentuated as choices become more frequent, more complicated, and more evenly balanced. A price we pay for our cerebral hemispheres, for our capacity for foresight, and our capacity to adapt is an accentuated vulnerability to conflict. Lower animals may be caught in conflict, but they do not characteristically live in conflict in the sense that we do.

I should like to venture a physiological characterization of conflict. Physiologically speaking, conflict may be regarded as activation of two (or more) neural patterns tending toward discharges which are mutually incompatible. When two neural patterns tending toward incompatible discharges are activated simultaneously, one may become dominant over the other and may thereby determine the pathway of discharge. On the other hand, each may block the discharge of the other. If the tension in one or both systems is thereby increased, the neural impulses so blocked may be expected to show a tendency to spread into other channels. Such a tendency is clearly demonstrated in one of A.J. Carlson's classical experiments in physiology: If under anesthia the spinal cord of a dog is hemisected above the segments innervating the phrenic nerve, the diaphragm on the ipsilateral side is immediately paralyzed. If now the contralateral phrenic nerve is transected, thereby checking all nerve impulses to the contralateral diaphragm, diaphragmatic breathing ceases and asphyxia sets in. Carbon dioxide rapidly accumulates in the blood stream and increases the stimulation of the respiratory center in the medulla. Under this stimulation of increased CO_2, the ipsilateral diaphragm begins to move again in breathing, establishing the fact that, with this increased tension of CO_2 in the system, the nerve impulses flowing down the intact side of the

*Reprinted from the A. M. A. Archives of Neurology and Psychiatry, January 1955, Vol. 73, pp. 110-117.

**Chief, Psychiatric Research, Psychiatry and Neurology Service, Veterans Administration, Washington, D. C.

[1]Maier, N. R. F.: Frustration: The Study of Behavior Without a Goal, New York, McGraw-Hill Book Company, Inc., 1949.

[2]Jenkins, R. L.: Nature of the Schizophrenic Process. Arch. Neurol. & Psychiat. 64:243-262 1950.

[3]Jenkins, R. L.: Schizophrenic Sequence: Withdrawal, Disorganization, Psychotic Reorganization, Am. J. Orthopsychiat. 22:738-748, 1952.

[4]Jenkins, R. L., and Holsopple, J. Q.: Criteria and Experimental Design for Evaluating Results of Lobotomy, A. Res. Nerv. & Ment. Dis., Proc. (1951) 31:319-327, 1953.

[5]Jenkins, R. L.; Holsopple, J. Q., and Lorr. M.: Effects of Prefrontal Lobotomy on Patients with Severe Chronic Schizophrenia, Am. J. Psychiat. 111:84-90, 1954.

spinal cord now cross the midline and activate the intact phrenic nerve.

It may be worth while to review certain broad considerations which relate to these matters. Physiological tensions within animals activate behavior. Behavior serves, with varying degrees of effectiveness, to relieve such tensions. That behavior which is most effective in relieving tensions tends to be repeated. Effective behavior tends almost universally to be patterned behavior, for unpatterned behavior is generally ineffectual. A significant part of human growth is the achievement of more numerous and more highly developed patterns of behavior and of thinking.

We know that patterned behavior is related to patterned neural activity, and it seems reasonable to presume that orderly thinking is also related to definite patterning of neural activity.

A state of acute perplexity and puzzlement, on the other hand, whether in a normal person or in a schizophrenic, seems probably related to a more diffuse and unorganized cerebral activity. The common electroencephalographic findings showing a disappearance of alpha activity and its frequent replacement with low-voltage fast activity suggest this, as does the general subjective state. Thinking no longer proceeds in an orderly fashion along clearly defined pathways but becomes more erratic and even somewhat disorganized, with a subjective mental state of tension and some axiety. For conflict generates anxiety, which is probably an expression of heightened activity dependent upon a positive feed-back from cortex to diencephalon. The anxiety, in some instances, may evolve even into panic. There is commonly evidence of muscular tensions and autonomic change, as though heightened activity of brain were tending to overflow to somatic and visceral structures.

In a state of conflict, with the activation of two neural patterns tending toward discharges which are mutually incompatible, and which block each other, and particularly with an intensification of activity probably mediated by a positive feed-back of cortex to diencephalon, we might expect the spreading of nerve impulses out of their usual pathways. This spread would represent a relative diffusion of neural excitement, as contrasted with its narrower and more usual channeling. Such diffusion might result in new pathways of discharge, which might effectively relieve the tension in both systems. Such a discharge of tension from two sets of neural pathways would represent a synthesis and may be assumed to be one of the physiological events which accompanies the moment of insight or of creativity.

The person going through conflict which has resulted in puzzlement often evolves a solution. He makes up his mind. He comes to a decision, and he is relieved. Thinking, and, by our hypothesis, neural activity, are suddenly restored from a diffused state to a more patterned character. If this pattern is a new one which harmonizes elements of old patterns in new synthesis and which holds up under reality check, we speak of its appearance as a burst of insight or of creative experience. Tension is reduced and probably the total neural activity commonly drops to a lower level.

It is worth emphasis that the normal person, faced with an intense conflict, may, when he has exhausted his powers of orderly search for a solution, go through a period of anxious, diffuse, and relatively disorganized or fragmented thinking, from which he may emerge with a new synthesis, a new insight.

An acute schizophrenic psychosis commonly begins with an anxious preoccupation with a conflict which leads to a similar diffuseness of thinking. However, the schizophrenic is able neither to resolve his conflict nor to put it aside. The anxious preoccupation leads to schizoid withdrawal. The diffuseness of thinking progresses to a disorganization of thinking or else results in the false solutions of delusion formation, which may sufficiently reduce inner tensions to stabilize the psychosis but which limit the patient's capacity for adaptation.

That which distinguishes the schizophrenic is that his puzzlement does not come to a satisfactory and realistic solution with relief of tension. It persists. The puzzlement, vagueness, relative disconnectedness, and lack of effective organization of thinking which are so common in the early schizophrenic are the psychological accompaniments of brain activity which is diffuse rather than patterned, which is unresolving, and which tends to jam the higher pathways of the brain and reduce their availability for the guidance of adaptive behavior.

It seems reasonable to presume that in a state of acute schizophrenic excitement there is, in neurophysiological terms, a heightened and relatively diffuse activity of the brain with many nerve cells firing rapidly and in a somewhat disorderly fashion, tending, thereby, to spread, or at least to maintain, a pattern of relatively random and disorganized activity.

This brings us to a reconsideration of the ideas of those brilliant pioneers, Eugen Bleuler and Hughlings Jackson. Bleuler[6] recognized that a splitting of mental activity is characteristic of schizophrenia. Jackson[7] stated that "insanities," as he called them, are due to a dissolution of the highest levels of mental integration and that such a dissolution pro-

[6]Bleuler, E.: Dementia Praecox or The Group of Schizophrenias, translated by Joseph Zinkin, New York, International Universities Press, 1950.

duces negative mental symptoms through loss of the activity of these highest levels, and positive mental symptoms, such as "illusions, hallucinations, delusions, and extravagant conduct," as a result of the activities of lower levels of integration now freed from higher controls.

The present hypothesis is that what renders the highest levels of integration of the schizophrenic mind unavailable for the adaptive regulation of conduct is their preoccupation with unresolved and unresolving conflicts, and that hallucinations, delusions, and extravagant conduct are not solely a release phenomenon but reflect also the effect of disorder in the higher circuits.

Resolution of such a disorganizing conflict may be presumed to be related to the development of some effective patterning of nerve cell discharges, a patterning which, on the psychological side, relates to the developing dominance of certain ideas or patterns of action. If we regard the developing ideas as reasonable and the patterns as appropriate, we say the patient is recovering. If we regard the ideas as unreasonable and find them fixed, then, although the patient is improving in his capacity to meet the demands of daily living, we speak of a developing paranoid stabilization. Such a stabilization may perhaps be compared to the healing of an injured joint, such as a knee, with interference with flexible function by scar tissue formation.

In relation to this hypothesis, the measures of treatment utilized with schizophrenic patients may be grouped as follows:

1. Measures which seek to relieve the diffuse activity by bringing about a direct resolution of the patient's central conflict

2. Measures designed to reduce the morbid feed-back of cortex to diencephalon and thereby reduce the intensity of the patient's conflict and resultant diffuse brain activity

3. Measures designed to draw the newer and higher brain structures back into the service of day-to-day adjustment

4. Measures designed to combine some of the foregoing

The resolution of conflict is a goal of psychotherapy. The resolution of conflict ordinarily depends, however, on the effective functioning of the mental apparatus. When the mental processes have already come apart in a schizophrenic split as a result of this conflict, there are, to say the least, substantial difficulties in utilizing them for the effective resolution of the conflict which has already disorganized them. Although some workers, such as Rosen, claim a good percentage of success by direct attack, the first method is perhaps more distinguished by its emotional appeal than by its present level of success.

For the present, it appears that direct resolution of the conflict must remain the exception, once the schizophrenic split has actually developed. On the other hand, there is every reason to believe that before the development of a schizophrenic split the wise application of psychotherapy may be an effective preventive. I stress the wise application, for it is well known that the utilization of the classical psychoanalytic approach has sometimes been blamed for precipitating a schizophrenic break. At any rate, there is considerable indication that too much uncovering therapy with too little supportive therapy may precipitate a schizophrenic disorganization in a susceptible patient. Here, as elsewhere in medicine, it is important that the therapist should be the master of his methods, not the slave of his methods. In dealing with the patient who shows tendencies toward anxious preoccupation or toward rumination, particularly if there are elements of detachment, he will do well to be sure of the reality of his emotional support of the patient before taking a risk that he may uncover too much.

If the conflict is acute, with a high level of anxiety, then it would appear that judicious use of mild chemical sedation to reduce the anxiety from a morbid to a functional intensity may be a wise addition to psychotherapy. It is, I believe, no accident that Bowman[8] found the number of total abstainers from alcohol to be disproportionately high in the schizophrenic group. This is a statement of fact. It implies no value judgment, and I will not argue with anyone who may wish to maintain that the risk of a schizophrenic psychosis is to be preferred to the risk of an alcoholic psychosis.

If the schizophrenic development is insidous and without a high level of anxiety, there is little virtue in seeking to reduce a level of anxiety which is not high. In such a case, it is not that adaptive thinking is crowded out by an axious preoccupation. Rather, the patient lacks motivation toward or interest in adaptive behavior adequate to compete with fantasy, and therapeutic effort must be directed primarily toward stimulating a higher level of motivation toward adjustive behavior, rather than toward the relief of anxiety.

If the defined goal must be to dampen and check the morbid resonance of cortex with diencephalon rather than to resolve it, then the most drastic, diagrammatic, and dramatic of the measures is the operation of prefrontal lobotomy. Putting a leucotome through the frontothalamic radiation certainly reduces to an important degree the extent of cortico-

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[7]Jackson, Hughlings: Evolution and Dissolution of the Nervous System, Croonian Lectures delivered at the Royal College of Physicians, March, 1884, New York. International Universities Press, 1950.

[8]Bowman, K.: Study of Pre-Psychotic Personality in Certain Psychoses, A. Res. Nerv. & Ment. Dis., Proc. (1933) 14:180-210, 1934.

thalamic connections and should serve to dampen the hypothesized eddy of neural activity between cortex and thalamus. And, indeed, it was the response obtained which suggested the present hypothesis. The lobotomized patient appears less anxious than he was before his operation.

It is assumed that a state of conflict gives rise to the schizophrenic psychosis. Such a conflict involves the activation of two neural patterns tending toward mutually incompatible discharges. It may be assumed that these two patterns will probably involve the higher brain structures, and, particularly, the frontal lobes, to an unequal degree. Thus, in the classical conflict of sexual drive with socially determined inhibition, it is reasonable to assume that the sexual drive is less dependent upon the intactness of the frontal lobes than is the social inibition. And we find, in fact, that frontal lobotomy tends to reduce the sexual inhibitions and, in this fashion, to reduce the sexual conflict. Prefrontal lobotomy represents, in a sense, forced reversal of the evolutionary process. The lobotomized patient is less concerned with abstractions,†, including moral principles; more stimulus-bound and stimulus-dependent; less conflicted, and, since, by all indications, less capable both of preoccupation and of a sustained conflict, certainly less capable of preoccupation with a sustained conflict. The result is a more limited, but, commonly, a more adequately functioning, personality.

The massive downward neural discharge occasioned by electroconvulsive therapy, followed as it is by a period of relative neural inactivity, particularly of the higher centers, must represent at least a transient interruption of our postulated circular thalamocortical activity. Such an interruption should increase the chances of the replacement of this activity with mental processes which serve a function of adjustment to the external world.

This treatment is in a sense analogous to the abolition of ventricular fibrillation which has been achieved by an electric shock adequate to set the entire ventricular musculature into contraction.[10] The morbid eddy of excitation is abolished thereby, and the normal cardiac rhythm reestablished itself. Similarly, in the prolonged narcosis of dauerschlaf, the activity of the cortex, in particular, is grossly depressed and the postulated circular activity must be interrupted or at least reduced.

All of the foregoing represent direct and active intervention with therapeutic intent. The second group of therapeutic measures may be regarded by some as the more "natural" ones, for they represent an effort to encourage a recovery which in many cases appears to arise spontaneously. Success depends upon the successful recapture and utilization of the higher neural pathways for the purposes of solving problems of adaptive behavior rather than leaving them occupied with the abstracted and distorted content of schizophrenic conflict. In most cases, such a diversion can best be established by an upward extension of the patient's range of adaptive capacity. Such an upward extension can, as a rule, be brought about only gradually and presumably reflects a progressive recapture of higher neural pathways for adaptive behavior. Initially, particularly, one should not overshoot the mark. It is in general best to begin with a relatively simple and concrete level of performance.

The dynamic of effective diversion is strong motivation, and if motivation toward adaptation is sufficiently intense, adaptive activity may gradually and effectively displace schizophrenic preoccupation. This has been shown most diagrammatically in the work of Peters[11,12] at the Veterans Administration Hospital, North Little Rock, Ark. Dr. Peters has begun with severely withdrawn schizophrenics who would do nothing in occupational therapy. They received subshock insulin from the medical staff to intensify their hunger and were worked with individually in graduated problem solving with food reward. Hunger plus a visible piece of food can create a strong motivation toward solving the problem of getting hold of that piece of food. These patients were not permitted to experience the frustration of failure, for their capacity to tolerate frustration and continue adaptive effort is conspicuously low. When necessary, they were given guidance toward the solution of the problem. They showed reliably greater improvement than did matched controls, either controls with subshock insulin but no problem solving or controls without either insulin or problem solving. Once the pattern of adaptive effort has been given an effective start, it may compete successfully with the schizophrenic preoccupation and disorganization. However, the extremely slow rates of development of new adaptive responses by these chronic schizophrenics were of a different order from the rate of adaptation not only by normal subjects but also by acute schizo-

†Dr. Theodore Lidz has described frontal lobe deficit as essentially a limitation of associated range. Such a limitation should effectively reduce conflict.[9]

[9]Lidz, T.: Analysis of Prefrontal Lobe Syndrome and Its Theoretic Implications, Arch. Neurol. & Psychiat. 62:1-26, 1949.

[10]Johnson, J.; Kirby, C. K., and Dripps, R. D.: Defibrillation of the Ventricles by Electric Shock with Complete Recovery, Ann. Surg. 134:116-118, 1951.

[11]Peters, H. M., and Jenkins, R. L.: Improvement of Chronic Schizophrenic Patients with Guided Problem-Solving Motivated by Hunger, Psychiatric Quart. (Supp. 1) 28:84-101, 1954.

[12]Peters, H. M.: Multiple Choice Learning in the Chronic Schizophrenic, J. Clin. Psychol. 9:328-333, 1953.

phrenic patients. It does not appear that the loss of capacity for adaptive response in the schizophrenic is irreversible, but it may become very difficult to reverse, and very slow to progress toward recovery.

The reversal of the schizophrenic process through the drawing of the newer and higher brain structures into the service of day-to-day adjustment is less diagrammatically illustrated in the usual spontaneous recovery and in the recoveries which take their origin in the development of interest, motivation, and consequent adaptive behavior in occupational therapy, manual arts therapy, corrective therapy, music therapy, or some other area of activity therapy. Almost the whole of hospital milieu therapy relates to the same principle. The patient's adjustive responses are praised and rewarded. Concern is centered, not upon his morbid tendencies, but upon the utilization to the maximum of his capacities for normal response. That such measures meet success in many cases is well known.

As an example of a measure of treatment which tends both to check morbid resonance and to reestablish adaptive behavior, insulin coma may be cited. The injection of massive doses of insulin produces a hypoglycemia. This first dampens and then paralyzes the activity of the higher centers of the central nervous system. The most recently elaborated structures representing the highest levels of integration are the first affected and the most affected. We see a descending paralysis of activity, affecting first the cortex and then the diencephalon. We stop the process short of paralysis of the respiratory center in the medulla. Thus, we temporarily check the activity of the cortex and of the diencephalon, and when the patient recovers from coma he experiences the biological stimulus of one of the primary drives, hunger, and is strongly motivated toward the adaptive behavior of eating. Since any adaptive activity tends to promote adjustment and recovery, this combination is therapeutically useful.

Psychotherapy, as applied with psychotic patients, may, and commonly does, attack on both these fronts. Typically, successful psychotherapy begins with some reduction in anxious preoccupation. The therapist provides a measure of emotional support, of emotional security in an interpersonal relation adequate to diminish the patient's anxiety. Some therapists even utilize false assurances for this purpose, projecting themselves into the patient's psychosis and playing a role therein. Once the anxiety is at a level not overwhelming, then the work of promoting adjustment and adaptation, initially in minor ways, becomes significant. Group therapy appears particularyl useful for the latter purpose. It may also have a measure of usefulness in diminishing anxiety.

The foregoing methods are useful chiefly for dealing with the disorganization which is central in schizophrenia. There are special problems related to dealing with withdrawal and dealing with paranoid stabilization.

We see withdrawal occur when interpersonal relations become too painful and too little rewarding for the person. We may see this in the autistic reaction of a young child whose relations with parental figures are more frustrating than rewarding. We see it at its height in the defensive withdrawal of the catatonic. Human contacts must be made rewarding, not frustrating, and the patience of Job is required. The systematic methods evolved by Roland,[13] a corrective therapist now at the V. A. Hospital, Chillicothe, Ohio, appear to have an unusual degree of effectiveness in dealing with catatonic withdrawal. They utilize the combination of a gentle, kindly, persistent personal interest and personal stimulus with the patient encouragement of interest in constructive activity. Dealing successfully with the withdrawn catatonic patient always reminds me of the ancient fable of the contest between the North Wind and the Sun as to which could make the traveler remove his cloak.

In dealing with paranoid stabilization, it is important that we be aware of the function of paranoid projection in reducing internal tension. Degan's factor analysis [14] of Dr. Thomas Verner Moore's material reveals in the second-order factors one which ranges from depression at one extreme to paranoid projection at the other. This represents, of course, the contrast between those patients who blame themselves and those patients who blame others. Let us remember that projection serves a purpose. For one thing, it protects the patient's self-esteem. For this reason it is unlikely that we will get anywhere with the paranoid patient until his desperate need to bolster his self-esteem is reduced. And here, again, we come to that sometimes disparaged treatment activity known as supportive therapy. The patient's need, of course, is in large part to defend himself from his own self-criticism. The sudden breakdown of a paranoid defense may result in a depressive reaction. The warm interest of another is perhaps the most significant element in enabling him to accept a greater measure of his own responsibility without thereby becoming depressed. The attack on the paranoid system must, therefore, never be a frontal

Continued on page 99

[13]Roland, P. E.: Exploratory Training Technique for the Reeducation of Catatonics, Am. J. Psychiat. 105:353-356. 1948.

[14]Degan, J. W.: Dimensions of Functional Psychosis, Psychometric Monograph 6, Richmond, Va., The William Byrd Press, 1952.

SOCIAL SERVICE AND CORRECTIVE THERAPY A CASE REPORT

CHARLES L. ROSE*

Introduction

In this paper a case is presented which illustrates the value of the two disciplines, Social Service and Corrective Therapy, working together in a psychiatric hospital setting. In a previous issue of this journal[1] Miss Irene Grant, a social worker of the Veterans Administration Central Office Staff, wrote about the value of liaison between Social Service and Corrective Therapy. The two specialties were seen as having common interests in (1) understanding the patient as a person; (2) having immediate and long range treatment aims; and (3) in the post-hospital follow-up. The case report which follows, it is hoped, will further the understanding of the relationship between these two disciplines.**

Upon admission to this hospital, patient, a 21 year old white male was confined to a wheelchair. He had been transferred directly from an Army hospital. He had sustained shrapnel wounds to his brain during combat in World War II and had undergone a resection of his right frontal brain lobe in a field hospital. Upon admission, the diagnosis was established as encephalopathy, traumatic; perforating gunshot wound of the skull, laceration right frontal and left parietal lobes, comminuted fracture frontal and left parietal bones; encephalopathy manifested by psychotic reaction, deteriorated type, and mental deficiency, secondary, severe, with motor aphasia, emissive, and right hemiplegia. The spastic hemiplegia and spastic deformity of the upper and lower extremities prevented the patient from walking. The time interval that had elapsed from combat injury to admission here was one year and three months.

During the following three years efforts were directed toward ambulation, improvement of function in the right arm, and speech training. The right leg was placed in a plastic cast with achilles tendon stretched in order to overcome equinus with ankle clonus, but the response was limited. Corrective Therapy became especially interested in this patient because of his interest in exercise. As a youngster he had been very much interested in athletics and sports, and during this hospitalization he enthusiastically entered into all prescribed physical activities. For this reason patient was more cooperative in corrective therapy than in other physical medicine modalities. Corrective Therapy administered general exercise to promote physical fitness and increased strength of the involved extremities. Because of the massive brain injury, it was thought that little improvement could be attained. This patient's mentation had been shattered and it was believed that he would become a permanent hospital case.

Social Service was requested by the physician to see what could be done about getting the family to care for this patient at home. The mother was brokenhearted about her son being physically and mentally shattered by the war, and it appeared that very little hope for improvement was posible. She rememberd th patient as the halthiest and most out-going of her three sons and she cried: "Before he went to the Army he was a healthy boy and full of fun—look at him now. I can't have him home; he belongs in a hospital." The mother thus could not tolerate a disturbance of the picture she had of the boy before his injury. The father, for his part, was the kind of a person who let his wife be spokesman of the family.

Shortly thereafter the mother died very suddenly of a heart attack. With this tragic event, the father was moved to want the boy home at all costs. Although he had two more years to go to attain full retirement from his job as a mechanic for the City Transit Line, he took a retirement at once so that he could devote himself full time to the care of his boy, and thus make possible the patient's living at home. Thus, some three years after the admission of patient from an Army Hospital a trial visit at home was arranged through Social Service, and thereafter regular contacts were maintained by the social worker by home visits.

Here was a situation where a severely incapacitated wheelchair-fast patient was able to remain at home only because of the unusual devotion of a parent. As time went on, however, it became apparent to the social worker that this could not go on indefinitely.

*Case Supervisor, Social Service Department, Veterans Administration Hospital, Bedford, Mass.

**This report highlights the role of Social Service and Corrective Therapy in the case described. It is not intended to repudiate the efforts of other departments who also played important roles in the rehabilitation of the patient under discussion.

[1]GRANT, IRENE, "Some Values in Mutual Consultation between Corrective Therapists and Social Workers", *J. A. P. M. R.* 4:2 17, April, 1950.

The father had nothing to look forward to except for a 24-hour-a-day, 7-day-a-week vigil of care. The father's anxiety came to the surface particularly when a 12 month period of trial visit was completed, the time when patients are normally discharged from the hospital. The father asked that the trial visit status be extended because he felt it would be easier for him to get his son back into the hospital if the connection with the hospital were not severed. As he put it himself, he wanted to "share the responsibility with the hospital." The father's request of course was valid, and the trial visit was maintained, but the basic problem still remained. Could the father be given some hope for his son's further improvement which would encourage him to continue caring for the boy?

Back at the hospital the social worker discussed this problem with the physician and in particular with the corrective therapist with whom the patient had formed the best relationship during the prior hospitalization. If the patient were to return to the hospital, this would be entirely understandable because of the merciless demands that were being made of the father in caring for a patient so severely helpless as to conventionally require hospital type care. The patient's home was located in a community adjacent to the hospital. It was conceived that the patient might receive further treatment at the hospital on an out-patient basis. This was cheerfully and gratefully accepted by the father. As far as the corrective therapist was concerned he was perfectly happy to have the patient come into his clinic on an out-patient basis, but there were administrative problems to be hurdled. The hospital program was not designed for out-patient treatment. This had never been done before. After feeling out other key people individually in gaining their interest, the social worker then presented the plan to the Chief of Professional Service, who arranged a formal conference attended by the Chief of Professional Services, the Chief of Physical Medicine & Rehabilitation Service, the ward physician, and the social worker.

As a result, 13 months after the inception of the trial visit, the patient began to come to the hospital for one full day a week. A schedule was arranged involving occupational and corrective therapy in the morning. In the afternoon diversional and socialization activities were carried on by a volunteer.

The first day the patient came to the hospital was rather dramatic. He was greeted with cries of joy and affection by patients and personnel alike. Everybody remembered the child-like winning personality of this incapacitated individual. Everyone admired how he had entered into the physical activties with every ounce of strength that he could muster, and undaunted, had fought a battle against great odds.

The stage was now set for the further events which followed. The social worker made it a point to drop in at the corrective therapy clinic while the patient was there. Considerable effort had gone into the special arrangement involved in the out-patient program and the patient had now become everybody's "pet case". This special interest is illustrated by the following recommendation made by the corrective therapist:

Because the right foot is out of alignment and extremely spastic, it prevents the patient from ambulating. It is my belief that if patient had some sort of appliance on the right foot or if his foot could be straightened by some other means. it would help him to ambulate.

The social worker also was extremely active during this period. In addition to maintaining contact with the patient when he came to the hospital, the social worker also maintained continuous contact with the father. The father asked many questions concerning the out-patient program and the progress of the case. He was deeply interested in the explanations which were given. The father pledged all-out support and cooperation, and was willing to accept the limitations of the result which might be expected. The father reported that with the out-patient regime, his boy was beginning to walk short distances with support. The father pinned particular hope on what corrective therapy might further do in restoring additional function to the right arm and leg. The father supplemented the corrective therapy treatments by taking his son out to their summer home, and having him paddle around in the water on an inflated inner tube. Sigificant excerpts from the Social Service record at this period are as follows:

In discussing patient's activities in corrective therapy with Mr. N. (the corrective therapist) he was of the opinion that these activities were still quite limited due to patient's inability to place his right foot flat on the ground . . . The question of medical and surgical treatment for this foot condition was discussed with the ward physician and arrangements were made for patient to return to the hospital.

The next link in the patient's chain of rehabilitation was thus forged. Four months after the out-patient treatment was started the patient was readmitted to the hospital for rehabilitation surgery; namely, arthrodesis, and fusion of the ankle joint, the object being a stable ankle to improve the patient's walking. Corrective therapy that went along with the surgery consisted of general muscle strengthening exercises, quadriceps exercises without weights, and knee-bending to limber up the right knee.

The entire course of surgery and rehabilitation took fourteen months and the patient was home again. Formerly wheelchair-fast, he was now able to walk unassisted and even go up and down stairs with the help of bannisters, specially designed and constructed

by the father. The social worker reported that on some visits the patient was not at home because he "was out by himself taking a walk." The patient was able to dress himself completely except for tying his shoes and to take care of his personal needs.

The special interest in the patient still continued. A social worker and doctor conferred from time to time on the patient's adjustment at home. Out of this grew the suggestion that patient be referred to the Aphasia Clinic at the Massachusetts General Hospital. The director of this clinic who is the national consultant in aphasia to the Veterans Administration examined the patient and made the following statement on accepting the patient for treatment:

> . . . This patient is extremely aphasic . . . he could not handle print . . . he could only copy one or two short words . . . I would interpret this to be severe and profound aphasia of quite long duration with relatively little spontaneous recovery. I cannot feel that patient is the sort who will make very great or very rapid progress in overcoming his language difficulty. I think he probably can make some improvement.

The patient has since attended this clinic daily for over a year. He is relearning reading, writing, and speech. He can now make himself fairly well understood, and this has improved his mental condition. The social worker has continued to visit the patient in the home in order to help maintain the patient in the community. Primarily, this took the form of giving the father support and encouragement to enable him to provide close supervision and care in spite of the patient's necessarily slow progress. The activity of a social worker also made the family feel that the hospital was still sharing actively in the responsibility for the rehabilitation of his boy.

While at home the patient is in the habit of visiting and socializing in the neighborhood. He is fond of looking at television and plays cards with his father and the neighbors. The father lets him win. During the winter months the father takes the patient coasting as he would a boy. During fair weather the patient likes to watch the neighborhood boys play ball. A huge Labrador Retriever is the patient's constant companion. Such behavior as masturbation and incontinence which was evident during hospitalization and prior to the rehabilitation activity has now completely disappeared. It might be noted that in the home there is now a stepmother. She is sympathetic to the patient although understandably no real tie exists between them. The father, as it were, is both father and mother to the patient.

Rehabilitative surgery as of today is still in process aimed at further correcting the inversion of the foot which has developed and to achieve even further stability of his leg. There is no question, however, of this patient ever becoming a "hospital case". He comes to the hospital only for specific treatment and then returns home.

This is not a success story in the sense of achieving total recovery. Because of the nature of his disability, the patient will never be restored to the condition he enjoyed before his injury. He will never be a self-supporting individual and lead an independent existence without being under the care of others, but the mobilization of treatment resources can be counted upon to attain this patient's highest possible potential in restoration. He essentially has been returned to the social network of the community and his status as a community resident, barring unforeseen events, has been stabilized. His hospital bed during the years that stretch ahead can be occupied by other disabled veterans who need hospital treatment.

Comment

Let us return to Miss Grant's description of the common interests of Corrective Therapy and Social Service; namely, understanding the patient as a person, short and long-range treatment goals and post-hospital follow-up.

This case report shows clearly how the corrective therapist saw the patient, not as a hopelessly crippled "case", but as a person who might be reached through his pre-morbid interest in exercise and athletics. The social worker, likewise, individualized the patient, but went a step further in working with the family to which the patient returned. The wisdom of this was borne out when an appreciation of the father's limitations in caring for the patient led to the exploration of further treatment possibilities, which in turn led to further rehabilitation.

In respect to treatment goals, the corrective therapist initially had the immediate goal of general conditioning and strengthening, and eventually the long term goal of a better level of ambulation. The social worker developed corresponding sets of goals: the initial goal being to support the father in his heavy task, and then to contribute to a higher rehabilitation objective which would lighten the father's burden.

Both corrective therapist and social worker continued their interest after the patient left the hospital. The interest of Social Service was formalized through the trial visit supervision program, the purpose of which was to prevent a breakdown in the community placement plan. This philosophy of social work coupled with "togetherness" of Social Service and rehabilitation both during the hospital and trial visit periods stimulated a mobilization of treatment resources which ranged from surgical intervention to the use of volunteers. Like the proverbial peb-

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PSYCHIATRIC PROBLEMS IN THE CARE OF THE AGED*

H. N. KING, M.D.**

The living of an individual to advanced years is not a new phenomemon. We have the biblical description of the span of life as three score years and ten. Sir Francis Bacon in his *Historia Vitae et Mortis* wrote of the differences of youth and old age in 1623:

> The ladder of man's body is this: To be conceived, to be quickened in the womb, to be born, to suck, to be weaned, to feed upon pap, to put forth teeth the first time about the second year of age; to begin to goe, to begin to speak, to put forth teeth the second time about seven years of age; to come to puberty about twelve or fourteen years of age, to be able for generation and the flowing of the menstrua, to have hairs about the legs and arm holes, to put forth a beard; and thus long and sometimes later to grow in stature, to come to full years of strength and ability; to grow grey and bald; the ceasing of the menstrua and ability to generation, to grow decrepit and a monster with three legs, to die. Meanwhile, the minds also hath certain periods but they cannot be described by years as to the decay in the memory and the like. . . . Nothwithstanding, old men, as in some things, they improve in their bodies, so also in their minds unless they be altogether out of date, namely; that they are less apt for invention so that they excel in judgment and prefer safe things before specious; also they improve in garrulity and ostentation for they seek the fruit of speech while they are less able for action.

We are told that in the time of Cicero, the average life expectancy was twenty-three years of age. This does not mean that people did not live to age seventy, but that the number who reached this age after birth was relatively small. Many died in infancy, in childhood, and in the earlier years of life and this brought the overall average to the low level enumerated above. The reasons for the increase in numbers who now live to advanced years are familiar to all and do not have to be related here. This is why the problems of aging are becoming more prominent today.

Our Veterans Administration Center, like other centers of the VA, consists of a hospital and a domiciliary. The domiciliary takes care of veterans who are disabled from earning a livelihood for various reasons, but who can be housed in barrack type quarters and who are ambulant and can go back and forth to a dining room for their meals. Our center reflects locally the problems of the aged. It represents a bay or an estuary in the body of this problem. Ninety-nine per cent of our domiciliary population are over 50 years of age; 56% are over 60; 8% are over 70.

A large percentage of our hospital admissions are from the domiciliary and our hospital practice also reflects medical problems in the care of the aged. Our open neuropsychiatric ward cares for both psychiatric and neurological cases. In the latter are included the cerebro-vascular accidents. Sixty-five per cent of our patients on this ward are from the domiciliary. On our closed psychiatric ward, 73% are from the domiciliary. On our open neuropsychiatric ward, 86% of our patients are over 50; 66% are over 60; and 22% are over 70. On our closed psychiatric ward, 62% are over 50; 43% over 60; and 8% over 70. Thirty-five per cent, or roughly one-third, of our patients on the closed ward carry diagnoses of psychotic reactions with cerebral arteriosclerosis or senility. Attention to the problems in the care of the aged is necessarily forced upon us.

The psychiatric problems of the aged are not problems which erupt suddenly after a certain age is reached. Mental illnesses are not automatically tripped by the attainment of a given period of life. They depend on what the individual brings to that period of life in the form of past life experiences and his reaction to them. The ground work for their development is frequently prepared in the years preceding. Vergil wrote "he who is of a calm and happy nature will hardly feel the pressure of old age; but to him who is of an opposite disposition, youth and age are equally a burden."

The psychiatric problems of the aged are also not entirely dependent upon the intra-personal problems, the internal perplexities of the individual, but also upon the external milieu, the social, economic, and physical environment in which he finds himself. We are at any time in life not isolated nodes in time or space, but are linked to the past and are influenced by what we see or anticipate in the future and also by an interplay and interchange between ourselves and our immediate surroundings, physical and human.

As a result, we must consider multiple factors in the etiology of the psychiatric illnesses which occur at this period of life. The organic degenerative changes which occur in the central nervous system are only one of a number of possible contributory causes which lead to the mental and emotional disturbances which occur in the older age group. They seem to play a role of varying degree in different individ-

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uals. Attempts to show a parallelism between the degree of pathology in the brain and the degree of mental illness present have to date been unsuccessful. Various investigators have tried it. In our Center, men rather frequently come to post-mortem examination and show numerous and extensive areas of encephalomalacia or softening of the brain, much to our surprise because prior to their death they had been making a good adjustment in the Domiciliary Section and, while mildly deteriorated had shown no gross deviations. On the other hand, we sometimes have individuals on our closed psychiatric ward suffering from mental illness, which has been considered due to degenerative cerebral changes, who show relatively little pathology on post-mortem examination of the brain. Likewise, it has been noted that normal individuals in the same age group come to post-mortem examination and show as much cerebral pathology as others who are under treatment for psychotic reactions considered secondary to cerebral arteriosclerosis, or senile brain changes. To repeat, we must consider additional factors to the cerebral pathology in explaining the development of mental illness in the aged. As is frequently true in psychotic reactions of other types, we must consider multiple causes, taking a longitudinal approach as well as considering the multiple possible causes of the moment. To attribute the mental changes of old age solely to the degenerative pathological changes in the central nervous system may also result in an attitude of futility on the part of the doctor and other personnel and lessen their effectiveness in dealing with these individuals.

We may enumerate some of the stressful situations which commonly arise at this period of life and which may under certain circumstances play a part as psychogenic factors in giving rise to mental illness:

1. Retirement from employment with a resultant interruption of a long established pattern of activity and making necessary establishment of and adjustment to new patterns.
2. Loss of a spouse through death with a breaking up of a long established inter-dependent relationship and a marked alteration of the pattern of living.
3. Increasing infirmity and physical illness with reduction in varying degrees of possible physical activity, powers of perception, etc.
4. Death of friends and associates, narrowing the number with whom social intercourse may occur.
5. Decline in economic status and financial resources secondary to retirement or separation from active employment.
6. Decline in regard and attitude of others toward the individual. Loss of position in the community.
7. Reduction in sexual activities.
8. Loss of an unlimited vista into the future, reduction of the foreseeable future and its resultant effect upon the individual.

These are some of the possible stressful situations which may in some individuals give rise to mental illness under certain circumstances. As important as these stressful situations is the type of person on whom they operate. In general, the ability of individuals to adjust to stress decreases with age. People become less able to adjust to new situations for a number of reasons:

1. People are more rigid and less able to bend, less able to ride the blows of adversity. Through habits of a lifetime, they are inclined to harden into more fixed patterns of reaction.
2. With decline of physical vigor, they show less rebound when they are unbalanced by certain stressful situations.
3. With organic changes of the central nervous system, they have, in some instances, decreased ability to think through and find solutions to problems which present themselves. They have less ability to devise means toward ends.

In addition, certain individuals bring to the aging period a precarious, marginal ability to adjust to stress. Due to certain fortuituous circumstances, they have escaped major stress during their earlier years and have been skating on thin ice without a breakthrough. When they then arrive at this period of life, the additional stresses are just enough to precipitate them into a mental illness.

What can we do to prevent the development of these illnesses? It is apparent that to prevent their development, we must begin long before we arrive at the stage in life where illnesses have their onset. Whether a given tree will withstand a heavy windstorm will depend upon how sturdy a tree it has become in its years of growth. Likewise, whether a given individual can face up to the stresses to which he is subjected in his later years depends upon how healthy a personality he brings to this period of life. This in turn is the result of a cumulative development arising out of his total life experiences.

To help in developing healthy personalities, principles of mental hygiene must be applied in earlier years. We may also, through various avenues of education, prepare the individual involved for the problems which will arise at this period, so that they do not approach it without forethought and will be able to make advance preparations for it in an in-

telligent way. They may be given the benefits of collective thinking and experience on the problems they are about to meet.

Inasmuch as some of these problems are the result of the social setting and attitudes of society toward this age group, it may be necessary for society to change some of these attitudes and customs. There is the matter of compulsory retirement at age sixty-five; the position of the aged, the regard in which they are held and the position given them in our contemporary (predominately urban, as compared with our past predominately rural) civilization; measures which can be taken to increase their feeling of security in the later years both as to economic security and as to measures that can be taken to maintain their health; measures that can be taken to increase recreational facilities for the aged throughout the country, through church, philanthropic, and civic action somewhat similar to what is being done for the younger age group by the establishment of "Golden Age Clubs", recreational centers for the aged, etc.

In treatment of mental illnesses in the aged, we, of course, must have an adequate history and physical examination. It is sometimes difficult to secure an adequate history because of difficulty in maintaining contact with the patient, particularly if the examiner is inclined to be impatient and unwilling to spend necessary time. However, in developing such a history we may find material of value to us in treatment. We may find certain environmental conditions which have a bearing on the illness and can be altered with help to the patient.

In dealing with these aged patients, we should try not to talk down to them, but to approach them in such a way that they can sense that we view them as dignified human beings who are entitled to respect, consideration, and a chance to be heard. We should listen to their story courteously and try to understand them. What at first does not seem to make sense, with further hearing sometimes becomes more clear and we are able to grasp points that they are trying to make, at first not too clearly.

We must attempt an evaluation as to how much of the picture is the result of organic change and how much is psychogenic and due to external stress. As noted previously, this is difficult to determine. Those instances in which there is noticeable affective element, in which there is agitation, depression or elation, give more promise of response to therapy, particularly electric shock therapy. Where the illness has manifested itself by gradual development of evidence of loss of memory, disorientation, confusion and varying degrees of deterioration, the chances of electric shock therapy being beneficial are not great. There are many cases that fall between these two extremes and shock therapy can sometimes be of benefit. Only trial will tell and we are frequently surprised at the improvement brought about in individual instances.

It is assumed that some of the difficulty in mental illness of the aged is due to cerebral arteriosclerosis with resultant narrowing of the lumen of the cerebral vessels, decreased flow of blood to the cerebral tissues, and consequent cerebral hypoxia. There is much investigative work in progress at the present time relative to lipoid metabolism and the manner in which atheroma are formed in the arterial vessels. It is possible that this line of investigation will result in knowledge which will give basis for prophylactic measures to prevent the development of arteriosclerosis. Some of the efforts in the treatment of mental illness in the aged have been directed toward increasing, if possible, the cerebral blood flow by means of drugs which were thought to be cerebral vasodilators. Among these have been tried Histamine, Nicotinic Acid, CO_2, Metrazol, etc. Variable success has been reported by different investigators. Some report favorable results and others the contrary. There has been no convincing concurrence of opinion as to their efficacy. In some instances, several modalities of treatment were combined in clinical investigations, so that it was difficult to determine which was responsible for the reported clinical improvement.

Shenkin and Novals[1], of Philadelphia, have recently reported the results of experimental work in which they made use of a nitrous oxide method of quantitiatively measuring the cerebral blood flow in the intact human being. Their results are rather surprising in testing the efficacy of the various vasodilators. They found little reduction in cerebral blood flow, oxygen intake, or vascular resistance in cerebral arteriosclerosis unless there was an accompanying arterial hypertension. They reason, that where hypertension with arteriosclerosis co-exist, that there must be a more diffuse degree of arterosclerosis, particularly of the arteriolar type. They found no correlation between over-all changes in cerebral circulation and oxygen consumption and the occurrence of mental symptons in the cerebral arteriosclerotic.

In investigating cerebro-vascular dilators, they found that 5% CO_2 increased cerebral blood flow on the average by 40% in normal young subjects and that the effect seemed to be specifically on the cerebral vessels, the systemic vessels being relatively unchanged. They found that the CO_2 had little effect in arteriosclerotic disease without concomitant hyper-

[1]"Clinical Implications of Recent Studies on Cerebral Circulation of Man", *Archives of Neurology and Psychiatry*. 71:2, Feb. 1954, p. 148-159.

tension. From this they inferred that the vessels were already maximally dilated as a means of offsetting or compensating for the arteriosclerotic narrowing. However, in cerebral arteriosclerosis in conjunction with hypertension, there was a resultant vaso-dilatation in connection with CO_2 administration.

They also found, through their investigations, that Nicotinic Acid was ineffective in dilating the cerebral vessels. They found that Histamine dilated the cerebral vessels, but that there was an accompanying peripheral vaso-dilation that so reduced the systemic pressure that the net result was a decrease in cerebral blood flow.

Of importance also, in the treatment of the mental illnesses in this age group, is the environment in which we place them. We should try to make the ward as bright and home-like as possible. We have radio and television on the ward. Television must now be accepted as part of our everyday life. On the closed psychiatric ward, it is an aid in bringing the outside world into the ward so that the patient does not feel cut off and isolated. Another factor in breaking down the barrier between the closed ward and the community, is the work of volunteer groups. They bring to the ward groups of individuals from the neighboring community and there is a healthy interchange between them and the patients which is helpful to the patients. At the same time, we hope that the individuals from the community get a first hand knowledge of the workings and conditions on a closed ward and are able to carry this out to the community. Our volunteer organizations bring in, through our Special Services Department, various forms of entertainment for the patients, organize parties for them, etc. Others come in and aid the more helpless patients in the writing of letters, keeping them in touch with their families and friends. They perform minor errands for them and help with various minor individual problems. Movies are shown several times a week on the ward. Bus rides are organized, taking the patients into the surrounding country. Those physically able are taken out to ball games held several times a week on the grounds. Our Occupational Therapy is conveniently close to the ward and the patients are busy in occupations in keeping with their ability.

In summary, we have no novel approach or original methods to present in caring for the mental illnesses in the aged. We wish to emphasize the longitudinal and multi-lateral approach in determining the etiology of these illnesses. We also feel that, as a result of such an approach, we should not view the illnesses in a pessimistic and fatalistic manner.

NEW V.A. HEAD IN PSYCHIATRY AND NEUROLOGY

Dr. Jesse F. Casey, leading Veterans Administration psychiatrist, has been appointed head of the Psychiatry and Neurology Service of VA's Department of Medicine and Surgery, effective June 15, 1955.

Dr. Casey succeeds Dr. Harvey J. Tompkins, Director of the Service for the past seven years, who is resigning to become Director of the New Reiss Mental Health Pavilion of St. Vincent's Hospital in New York City. In his new post Dr. Tompkins also will serve under the Right Rev. Monsignor James J. Lynch, Secretary of Catholic Charities, as a consultant in psychiatry and coordinator of psychiatric activities for the archdiocese of New York.

The Director of VA's Psychiatry and Neurology Service has first-line supervisory responsibility for the care and treatment of mentally ill veteran-patients who occupy approximately one-half of all the beds in VA's 173 hospitals, and many other thousands of veterans treated in VA mental hygiene clinics.

Of the changeover Dr. Middleton said: "Through his professional competence, progressive leadership and administrative talents, Dr. Tompkins has been a prime mover in bringing the VA to its present position of eminence in the mental health field.

"Fortunately, we have an able successor in Dr. Casey, who has an excellent record in the VA service, and has for three years been serving as the principal assistant to Dr. Tompkins."

Presently Chief of the Psychiatry Division at VA headquarters in Washington, D. C., Dr. Casey formerly was Manager of the VA hospital in Topeka, Kansas. While there, he worked closely with the Menninger Foundation in developing the VA hospital's huge residency training program in psychiatry.

Dr. Casey is a native of Goldsboro, N. C. He obtained his A.B. degree in 1925 from Guilford College, Guilford, N. C., and his M.D. degree from the George Washington University School of Medicine in Washington. D. C., in 1931. He took his internship and residency training in psychiatry at St. Elizabeth's Hospital in Washington. He served three years in the European Theatre of Operations during World War II in various Army hospitals and participated in the Battle of the Bulge. He was separated from service with the rank of Lieutenant Colonel.

Before coming to Topeka, Dr. Casey was assigned to VA hospitals in Lexington, Ky., Perry Point, Md., and Gulfport, Miss. He became Chief of Professional Services at the Topeka hospital in January, 1946, and Manager in July 1948. He came to Washington, D. C., in 1952.

Dr. Tompkins, who served as a Colonel in the U. S. Army Medical Corps during World War II, was born in Chicago. He received his education at Loyola University in Chicago, obtaining his B.S. degree in 1929 and his M.D. in 1932. He interned at Mercy Hospital, Chicago.

He joined the VA in 1935, and has been assigned to hospitals in Danville, Ill.. Mendota, Wisc., St. Cloud, Minn., and Knoxville, Iowa. At Mendota, he worked in cooperation with the successful diagnostic and intensive treatment center for the care of veterans with mental illnesses.

Dr. Tompkins has been assigned to VA Central Office in Washington since 1945, first as Assistant Chief of the Neuropsychiatry Division, later as Chief of the Inpatient (hospital) Section, and, since 1948, as Director of the Psychiatry and Neurology Service.

He is a fellow of the American Psychiatric Association, the Association of Military Surgeons, the Group for Advancement of Psychiatry, and a mumber of other professional associations. He is a member of the Advisory Board of The Association For Physical and Mental Rehabilitation.

For the past eight years he also has been clinical professor of psychiatry at the Georgetown University School of Medicine, in Washington.

NEW DEVELOPMENTS IN ARTIFICIAL LIMBS

PART II, LOWER EXTREMITIES*

MARSHALL A. GRAHAM, B.S., M.S.**

In the March-April issue of the *Journal for Physical and Mental Rehabilitation*, this author presented a discussion of developments in the field of prosthetics for the upper extremity amputee. Work is continuing in studying the problems facing the lower extremity amputee with the aim of developing better artificial legs. As in the previous paper, I shall describe the major developments of the past several years.

The prosthetic treatment for the lower extremity amputee, in general, is well known. Although many conventional type of artificial limbs have been adequate for amputee use, much progress is still possible. It has been demonstrated in the research laboratories that amputee gait and performance can be improved by changes in present prosthetic technique. Research has aimed at developing devices which would more adequately meet the basic requirements of stability, comfort and function so necessary to the lower extremity amputee.

For the below-knee amputee the major emphasis has been placed on the problem of *comfort*. Comfort is divided into two areas. The first is comfort of the stump within the socket and is directly related to socket fit. The second is a generalized comfort that depends upon the appendages of a below-knee prosthesis (i.e., thigh corset, metal side bars and joints, waist belt, kick strap and check lacer). Several types of prosthetic devices concerned with these areas of comfort have been under investigation during the past several years.

U.S. Navy Soft Socket Below-knee Prosthesis[1]

Called a soft socket, the Navy socket is the most unique feature of the Navy Below-knee Leg. "Soft sockets" are not unknown to the limb industry, but the Navy developed a technique for taking the cast of the stump under weight bearing conditions and then fabricating the socket over it with no corrections to that cast. The usual limbfitting practice is to correct a stump cast by means of a plaster build-up in certain regions (for example at the head of the fibula, often a trouble spot in the below-knee prosthesis) in order to relieve pressure in this region in the resulting socket. By means of the non-corrected Navy impression cast technique, less difficulty and more accuracy is expected in the fabrication of the below-knee socket. Also, as a result of this cast taking technique, weight-bearing pressure is dispersed over a larger socket area, providing greater socket comfort.

Another unorthodox feature of the Navy Below-knee Prosthesis is the ankle. The Navy ankle consists of a single block of rubber through which runs a stainless steel cable which acts as the means of attachment of the foot to the shank. The rubber block is made so that the anterior portion is of a higher durometer rubber (harder) than in the posterior portion, allowing a greater range of motion in plantar flexion than in dorsi-flexion. The ankle system allows motion of the foot in all planes (plantar and dorsi-flexion, eversion, inversion, horizontal rotation, and any combination thereof). Some control of the extent of these motions is possible by tightening or loosening the ankle cable or by changing the rubber ankle block for one with durometer readings that best suit the height, weight or walking pattern of the individual amputee. Some instability is to be expected during the early stages of use of the new ankle but with experience comes greater stability and stump comfort, especially when walking on rough ground.

The shank of the Navy leg[2] is made of a laminated plastic material. It comes in various stock sizes that are mass produced over master molds.

Below-knee Suction Socket

Suction sockets for below-knee amputees have been tried at various times in the past with little or no success. One technique (the Galdick Below-knee

*This is the second of two sections of a discussion of new developments in artificial limbs. Part I, which dealt exclusively with upper extremity prosthetics, was published in the March-April 1955 issue of this Journal.

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[1] ***Construction, Fitting and Alignment Manual for the U. S. Navy Soft Socket Below-knee Prosthesis,*** Amputation Center, U. S. Naval Hospital, Oakland, California, September, 1954.

[2] ***Plastic Shins for Artificial Legs,*** The Artificial Limb Department, U. S. Naval Hospital, Oakland, California. Research Project NM 007 084.10, Final Technical Report, September 21. 1954.

Suction Socket Prosthesis) was suggested for evaluation at the Prosthetic Devices Study laboratory in New York. Attempts at fitting ten amputees were only partially successful and although three subjects wore their prostheses routinely for a period of time, this technique is far from ready for general use.

The below-knee suction socket prosthesis, like its older brother for the above-knee amputee, permits discarding of thigh lacer, side bars and other suspensory appendages which have been prime items of discontent for the amputee. Interestingly, there was noticeable hypertrophy of the upper leg on the amputated side[3 4] after a period of wear of the below-knee suction socket. Work is continuing at the U.S. Naval Hospital at Oakland, California, on a method of applying the suction principle to the below-knee prosthesis.

Blevens Below-knee Cushion Suction Prosthesis[5]

Another type of below-knee prosthesis that attempts to eliminate suspensory appendages above the knee was developed in a limbshop in Louisville, Kentucky. It is fabricated of wood and includes a conventional foot and ankle. Considered for amputees with long stumps (six inches or more), suspension is primarily accomplished by the use of a sponge rubber pad placed between several stump socks and fitting into an undercut channel in the rear of the socket in the area of the gastrocnemius muscle. In addition to the effect of the sponge pad, there has been noted a certain amount of negative pressure developed within the socket in much the same manner as for the above-knee suction socket.

Although some cases that were observed needed no auxiliary support other than the sponge pad and the suction principle, other amputees, whose stumps were in the shorter range required a type of knee strap to aid in socket retention.

Preliminary investigation of the Blevins Below-knee Prosthesis has been completed by the New York University Prosthetic Devices Study. However, further evaluation of this fitting technique is necessary before full acceptance is possible.

Solid Ankle Cushion Heel Foot (SACH Foot)

The SACH Foot is a recent development from the University of California. Useful for all amputation types, this foot replaces the functions of the ankle bolt on a conventional leg, with a cushioned area built into the heel of the foot by means of laminated rubber layers. Lateral motions as well as those in the sagittal plane are possible.

The toe of the foot is made of a rubber composition that extends from the wood keel of the foot itself and replaces the conventional toe-break. An interesting feature of this foot and ankle combination is that there are no movable parts. With the elimination of the ankle bolt, it is possible to fit the SACH Foot to a shank of any diameter with good cosmetic effort. This will be especially useful for fitting small women and children.

More progress has been made in the research program with respect to devices for the above-knee than for the below-knee amputee type. However, before discussing the several devices that are in development with the aim of providing above-knee amputees with mechanically and functionally improved prostheses, a few words about the suction socket for the above-knee amputee are in order.

The suction socket has been through a rigid research program lasting several years, both in this country and abroad. Although records show that the suction principle was known as early as 1863[6], it was not used extensively until the 1930's in Germany, and it has only been within the past seven years that it has become an accepted procedure in this country for use in the treatment of the above-knee amputee.

The major advantage of the above-knee suction socket is in the elimination of the metal hip joint and pelvic belt as means of suspension for the artificial limb. They are replaced by a system of positive and negative pressures controlled by the fit of the socket, the weight of the amputee and a one-way air valve set into the side of the socket. By the use of a socket of this type, amputees have been able to achieve more freedom of motion of their artificial legs and in many instances, have achieved a more normal-appearing gait pattern. The socket shape takes into consideration the thigh musculature, which seems to enlarge after a period of use of the suction type socket.

Considerable literature is available describing the progress and technique of the suction socket prosthesis and so I shall not go further into the subject.[7 8 9 10]

Excluding the suction socket, the major area of investigation with respect to prosthetic treatment of the above-knee amputee has been concerned with control of knee functions. To discuss knee functions,

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[3]Unpublished data collected by the author during the Shakedown Test of the Galdick Below-knee Suction Socket Prosthesis.

[4]GRAHAM, M. A. and H. KRAMER, "A Revised Method for Obtaining Atrophy-Hpertrophy Measurements", *The Physical Therapy Review*, Vol. 34, No. 11, November 1954.

[5]*Shakedown Test of the Blevens Below-knee Cushion Suction Prosthesis*, Prosthetic Devices Study, Research Division, College of Engineering, New York University, May 1955.

[6]PARMELEE, D.D., United States Patent 37,637, February 10, 1863.

an understanding of the basic fundamentals of prosthetic gait is essential.

Gait is functionally composed of two parts; *stance phase and swing phase.*

The stance phase is that portion of the gait wherein the prosthesis is on the ground. It includes the time from prosthetic heel contact through the transfer of weight onto and in front of the artificial leg and until prosthetic toe-off. During this time the artificial limb must act as a support for the body mass, and so the knee must remain rigidly in extension during the weight transfer. This stance phase stability, often referred to as alignment stability, is accomplished by the superposition of the shank on the foot with the ankle in slight plantar flexion, and the thigh section upon the shank with the line of the center of gravity of the body passing anterior to the center of rotation of the prosthetic knee joint.

The swing phase is that portion of the gait wherein the prosthesis does not touch the ground. It includes the time from prosthetic toe-off, through flexion and extension and until prosthetic heel contact. During this time, the artificial limb should swing in a manner that compares as closely as possible to the swing phase of the flesh leg. Some aspects of the swing phase[11] that are easily noticed if exaggerated, are (a) prosthetic heel rise at the end of knee flexion, (b) impact at full knee extension, (c) speed of the forward swing and (d) whips (deviations from a true swing in the sagittal plane).

The prostheses that will be described in the following paragraphs, attempts to improve on the conventional types by providing functions either mechanically or hydraulically that will allow the amputee a more uniform bi-lateral gait. One of the functions of the anatomical leg is known as *terminal deceleration.* The muscular action of the quadriceps slows the swing of the shin and foot as the knee flexes immediately after toe-off, so that knee flexion is not exaggerated. The hamstrings and the gastrocnemius muscles act in the same manner at the end of the extension or forward swing phase, eliminating the jarring impact that would otherwise be present. A terminal deceleration feature has been incorporated in each of the following above-knee prostheses.

Navy Above-knee Prosthesis[12]

The Navy Above-knee Prothesis is composed of a conventional or suction type socket, a plastic shank, the same Navy foot and ankle used on the Navy Below-knee Leg, and a special knee mechanism. The Navy knee provides stance stability by alignment in much the same manner as conventional type knees. The knee, commonly known as the "double variable cadence knee", uses two friction bumpers which fasten to the knee bolt, to provide a variable type of friction. During the initial portion of both the forward and rearward swing phases of the prosthetic leg, these friction brakes do not act, the knee being free swinging. However, after the shank has passed through approximately half of its arc in either direction, the friction brakes hit rubber bumpers that are built into the knee block, causing friction to be applied to the bolt and thus slowing the prosthetic shank as it comes to the terminal area of its swing. Findings during evaluations of this type limb have shown that the inclusion of variable friction allowed the amputees a more controlled swing of the prosthetic leg with fewer deviations from the swing of the flesh leg. Variable friction also allowed the amputees to more easily control the speed of their gait, because, as the swing of the leg becomes more pronounced during faster walking, the deceleration action automatically acts over a longer arc of the swing.

The Navy leg has successfully progressed through several evaluations of the Prosthetic Devices Study of New York University, the last being a nationwide field test.[13] At present, a field study on the production model of the Navy leg is being carried on in rehabilitation centers in all parts of the country. It is expected that there will be continued success in the fitting of above-knee amputees with this unit.

For the past several years, attempts have been made to develop a maintenance-free hydraulic system for use in above-knee prostheses. Four of these systems are at present in various stages of development and testing. Following is a brief description of the highlights of each of these:

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[7]EBERHART, H. D. and J. C. McKENNON, "The Suction Socket", *Human Limbs and Their Substitutes,* P. E. Klopsteg, P.D. Wilson, et al., McGraw-Hill Book Company, Inc., New York, 1954. pp. 653-675.

[9]THORNDIKE, A., "Suction Socket Prosthesis for Above-knee Amputees: Interim Report of Veterans Administration Experimental Program", *American Journal of Surgery,* 78:603, 1949.

[9]THORNDIKE, A. and H. D. EBERHART, "Suction Socket Prosthesis for Above-knee Amputitions", *American Journal of Surgery,* 80:727, 1950.

[10]United States Army, Office of the Surgeon General, Commission on Amputations and Prosthesis, "Report of European Observations", Washington, 1946.

[11]GRAHAM, M.A. and S. FISHMAN, et al., "Evaluation of the Gait of Unilateral Above-knee Amputees", Prosthetic Devices Study, Research Division, College of Engineering, New York University, April 1951.

[12]WAGNER, E.M. and J.G. CATRANIS, "New Developments in Lower Extremity Prostheses", *Human Limbs and Their Substitutes,* op. cit., pp. 497, 547-548.

[13]*Field Test of the Navy Above-the-knee Prosthesis,* Prosthetic Devices Study, Research Division, College of Engineering, New York University, Report No. 115.16, January 1953.

University of California Knee[14]

At the University of California at Berkeley, a vane-type hydraulic unit was developed with the major emphasis on control of the swing of the shank of the prosthesis. It is to be used in conjunction with the University of California Knee, incorporating an alignment principle called the four-bar linkage system. This is roughly likened to the commercially available polymatic type of knee. The linkage system affords the amputee some control of his prosthetic stance phase stability by maintaining the center of rotation of the knee posterior to the center of gravity of the body mass. The purpose of the hydraulic system is to provide a friction component in the knee that will not change over a long period of use, as well as to provide such functions as terminal deceleration at the end of the forward and rearward swing phases. Several units of this system had undergone tests at the New York University laboratory, results of which were not completely satisfactory. The unit has recently undergone production redesigning and several are to be retested by New York University in the near future.

Henschke-Mauch Hydraulic Leg[15]

This leg was developed several years ago and has undergone a series of tests that have pointed up certain shortcomings. The inventor has gradually been making changes based upon the evaluation reports from the Prosthetic Devices Study laboratory and it is hoped that he will have the unit at a stage for full scale retesting in the near future.

The Mauch leg has numerous features. There is a special knee block to which the hydraulic system (which looks like a hand football pump) is attached. The leg is a complete entity, even without the unit, a mechanical friction device being inserted. The hydraulic units are interchangeable and can be placed into a leg in about twenty minutes. The many functions of the hydraulic unit include variable friction with terminal deceleration, a knee locking system and a provision for buckling-prevention when landing on a flexed knee.

The frictional variations in the swing of the Mauch Leg can be adjusted for individual amputees by means of a knurled set knob at the top of the hydraulic cylinder. Once correctly set, the principle of hydraulic friction allows for automatic adjustment of the prosthetic swing to the swing phase of the flesh leg. It is important to note that the amputee must first fully extend the prosthetic knee of this new leg before the knee can become free for the usual swing phases. If the knee is not fully extended, a higher friction component becomes effective, restricting the usual swing phases.

This higher friction acts as a buckling preventative. If weight is inadvertantly placed on the prosthetic leg while the knee is partially flexed, the knee will give slowly, allowing the amputee enough time to regain his balance. Also, when an attempt is made to flex the prosthetic knee before fully extending it, the great increase in hydraulic friction allows the amputee to put his full body weight on the prosthesis with the knee flexed. The slow give of the knee becomes functional for descending stairs and hills. The amputee can alternate legs during these descents with a more normal, even pattern.

The knee lock is activated by manually moving a small lever at the rear of the knee. The knee can be locked at any desired degree of flexion and once locked can be extended, but not flexed further. An example of the beneficial function of this feature is in driving an automobile. The knee can be locked with the prosthetic foot on the accelerator and with the knee flexed to a desired position. Pressure can then be exerted on the accelerator with no fear of the prosthesis buckling at the knee.

Due to the radical differences in the operational characteristics of the Mauch Hydraulic leg, it has been found necessary to provide training after the fitting of an amputee with the new leg.

Stewart Hydraulic Leg[16,17]

This hydraulic system is further advanced in the test program than either of those previously described. The unit, incorporating both knee and ankle of the artificial leg, acts as an integral part of the alignment system of the prosthesis in addition to its other functions. A basically conventional foot and stump socket are all that are necessary to complete the artificial limb. Some of the features that I consider to be of major interest and importance follow.

As in the previously described devices, the Stewart unit provides hydraulic control of the swing phases of the lower leg. The control includes both forward and rearward deceleration as well as automatically adjustable friction throughout the swings. Actually, the hydraulic friction adjusts itself to the speed at which the amputee walks as a result of the principle of hydraulics. As the prosthetic knee is flexed and extended, oil flows from cylinder to cylinder within the unit through a preset oil port. During slow walking speeds, the pressure built up within the unit as the oil is forced through the port, is low, and so the

[14] *WAGNER, E. M. and J. G. CATRANIS*, op. cit., pp. 551-554.
[15] Ibid., pp. 555-557.
[16] *The Functional and Psychological Suitability of an Experimental Hydraulic Prosthesis for Above-knee Amputees*, Prosthetic Devices Study, Research Division, College of Engineering, New York University, Report No. 115.15. March 1953.
[17] WAGNER, E.M. and J.G. CATRANIS, op.cit., pp. 587-589.

friction component remains low. At faster speeds, the same amount of oil is forced through the flow port in a shorter space of time. The friction of the unit therefore becomes greater, allowing the amputee to walk with a less erratic gait pattern than normally found at fast speeds. The amputee is actually able to vary the speed at which he can walk with much greater facility than is possible with conventional prosthesis.

An important function found in the Stewart leg is a coordinated knee and ankle action. When the knee flexes past 20 degrees, the ankle dorsi-flexes so that the toe of the prosthetic foot lifts in relation to the floor. This action closely imitates the action of the normal foot during the swing of the leg and aids in the reduction of several common gait deviations of the above-knee amputee.

Another feature of the Stewart leg is the adjustable ankle. It is possible for the amputee to vary the attitude of the prosthetic foot from about 30 degrees of plantar flexion to 20 degrees of dorsi-flexion. This means that any of the units can be adjusted to the needs of the individual, either in terms of the height of the shoe heel being worn or the slope of the ground being walked on.

These features, among others, have made the Stewart leg one of the most acceptable of the experimental prostheses presently under investigation. The unit has recently undergone a production revision and has been presented to New York University for further evaluation.

Canadian-Type Hip Disarticulation Prosthesis[19]

There is at present under evaluation a new approach to the fitting of hip disarticulation prosthetic legs. The usual hip disarticulation prosthesis, called a "tilting table", incorporates a metal hip joint placed laterally in the area of the natural hip joint. This artificial joint usually includes a mechanical lock for stability while standing and walking. The lock can be released manually to allow hip flexion for sitting.

The Canadian type leg for hip disarticulation amputations provides stance phase stability at the hip by means of alignment rather than by a mechanical lock.[20] The mechanical hip joint is placed anteriorly on the pelvic socket so that, although hip flexion is possible during the forward swing phase, when the body weight is placed on the artificial limb, the center of gravity is well back of the mechanical joint, tending to force it into extension. Also, as in the above-knee leg, the line of gravity falls anterior to the prosthetic knee joint, keeping it in extension. With hip flexion possible, the gait pattern of the hip disarticulation patient almost approaches that of an above-knee type.

Elimination of the lock on the hip joint does away with the need for a manual operation before sitting down. Preliminary investigation has been satisfactory and it is expected that a complete analysis will prove the Canadian Type Hip Disarticulation Prosthesis a valuable addition to the lower extremity "armamentarium".

Summary

This paper has presented a brief resume of the present status of the development of prostheses for the lower extremity amputee. It is through the combined efforts of many disciplines that these developments have been made possible and it will only be through further cooperation that many of them will provide help to the amputee of the future.

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[19] GRAHAM, M.A. and S. FISHMAN, "Evaluation of the Gait of Unilateral Above-knee Amputees", loc.cit.

[19] McLAURIN, C. A., "Hip Disarticulation Prosthesis", Prosthetic Services Centre, Toronto, Ontario, March 19, 1954.

[20] WAGNER, E.M. and J.G. CATRANIS, op.cit., p. 596.

PARAPLEGICS USED IN STUDYING MECHANICS OF RESPIRATION

A group of paraplegics are aiding doctors at U.C.L.A. Medical School and the Long Beach VAH in determining to what extent the muscles of the abdomen, chest, and neck contribute to the act of breathing. Because the patients' neuromuscular involvements are known, the doctors, by measuring oxygen intake and carbon dioxide output, are able to ascertain the degree of respiratory impairment in each patient tested and from this data, an indication of the musculature involved in normal respiration can be made. The study is being performed under a grant by the U.S. Public Health Service by Drs. Alan Hemingway, Ernest Bors, and Benjamin Klausmann.

The proceedings of the Sixth World Congress of The International Society for the Welfare of Cripples are now available in book form. The volume contains the papers presented at the Congress and includes information of interest and value to all who are engaged in programs for the disabled

NEW DRUG USED IN PARKINSONISM

A new drug in tablet form has been found efficacious in relieving parkinsonian tremor and rigidity and many patients treated with the drug are now able to accomplish self-care activities with less difficulty according to an announcement by Sharp and Dohme. The drug, Congentin, is effective in overcoming extensive muscular rigidity, spasm, and contracture and the improvement of muscle function is responsible for relieving many stigmata of the disease as well as bringing about a return of the normal gait, facies, and posture.

STUDY SHORTAGE OF REHABILITATION PERSONNEL

The Health Resources Advisory Committee has appointed a new sub-committee to study personnel shortages in the fields of rehabilitation and the care of the chronically ill. Mr. Eugene Taylor has been named chairman of the new sub-committee.

A STUDY OF THE SUPPORTING MUSCULATURE OF THE ANKLE IN RELATIONSHIP TO STRENGTH LOSS AND THE POTENTIAL OF ANKLE INJURY IN ATHLETICS

KARL K. KLEIN*

For many years the problem of ankle injury has ranked second in occurance among the disabilities encountered by the athletic coach and trainer.[1] However, recent research dealing with the problem of muscular strength measures and strength losses during vigorous physical activity has led the author to the conclusion that *strength losses* during vigorous physical activity have a direct bearing and may well be an important predisposing cause of the high incidence of ankle injury and the predominance of lateral injury over those of the medial aspects of the joint.

Source of Data

Two sources of information were used in this study:

1. The squad members of four college and univerity football teams.[2]

2. Data obtained from report on strength decrement, "Indices from Military Marches; Comparison of Army Packs and Army Boots and Shoes", Springfield College Research Laboratory. Report to the Climatic Research Laboratory, Quartermaster Corps, Dep't of the Army Under Contract Da 44-109-1137.[3] **

In both of these studies scientific strength measurements were made with the use of Clark's Cable Tension Strength Tests.[4]

The first study dealt primarily with a comparison of strength measurements of the inversion and eversion muscle groups of the ankle.

The second study made use of strength measures comparison. These consisted of pre-strength measurements and measures taken at specific intervals during the physical activity program. (marches made under full military pack by the foot soldier.)

Analysis of Muscles Active in Movements Involved

According to Edwards[5] the following muscles are functional in these movements of the ankle:

Inversion

Tibalis Anterior
Extensor Hallicus Longus
Flexor Digitorum Longus
Flexor Hallicus Longus
Tibalis Posterior and Gastrocnemius
Soleus and Plantaris tend to invert the foot.

Eversion

Extensor Digitorum Longus
Peroneus Tertius
Peroneus Longus
Peroneus Brevis

From the standpoint of the muscles assisting in each of these movements it appears that inversion would be the stronger of the two actions being studied. This assumption is based on inspection of the previously listed muscle groups and not based on strength measurements.

Analysis of the Data:

In the football study, strength measurements were made on one hundred and twenty squad members with the average eversion movement of both ankles being stronger than the average inversion movement.

The statistical differences represented by the "t" are very significant (well above the .01 level of confidence). It is to be noted that the eversion ankle mean scores are appreciably higher than inversion ankle scores.

In the Springfield College studies similar differences were found to exist in the experimental group with eversion being the stronger of the two movements.

Ankle Movement	M*	Diff.	S.E. Diff.	"t"
R.inversion	30.92			
R.eversion	41.43	10.51	1.28	8.2
L.inversion	33.31			
L.eversion	38.75	5.44	1.27	4.2

*The mean measures used throughout this study represent static strength measurments in tension pounds.

*Department of Physical Education, University of Texas.
**The author was part-time instructor and Research Laboratory Assistant during Army Quartermaster Corps research at Springfield College, 1952-54.

The indication here is that before strenuous physical activity the *eversion* muscle group of the ankle is much stronger than the inversion group and therefore gives greater support at the onset of physical activity.

Strength Measurements following Physical Activitys

The strength loss phase of the study was confined to the Springfield experiments and because of the similarity of the pre-activity muscle measurements of both groups it is assumed by the author that a similarity of results would have been obtained with the football group.

The data utilized for this phase of the study dealt with the comparison of strength before and at the completion of the activity when various types of army footgear were worn.[a] This study of strength losses utilized the data for the two boots that most closely resembled the two types of football shoes used today, the oxford and the high boot with ankle support (combat). Muscular tests were made only on the right side, but it can be assumed that similar results would have been obtained with left side measurements.

Low Boot Datas

Strength losses with the use of this boot were much higher than those measures with the use of the other boot. This may be attributed to the fact that the boot is low and does not give support to the ankle joint. The stress and strain is countered only by the supporting musculature which is gradually weakened during vigorous physical activity.

The data obtained from this phase of the study are as follows:

Eversion strength losses—"t" of 3.72

Inversion strength losses—"t" of 2.11

The eversion strength losses are well above the .01 level of confidence which is 2.46 for the number of cases studied and indicates that in over 99% of the cases these losses were accountable to the physical activity. The inversion strength losses are above the .05 level of confidence which is normal at 1.70 for the number of cases studied and indicates that in over 91% of the cases the losses were accountable to the physical activity factor.

High Boot Datas

Strength losses with this boot were much lower in comparison but gave significant evidence in measurements. It is indicated here that the support that the boot gave to the ankle was responsible for increased stability thus reducing the muscular strength losses during physical activity.

The inversion muscle groups showed a rise in strength during the early phase of activity and then gradually lost strength to about the pre-activity test level.

The eversion muscle groups showed significant strength losses up to five miles and then tended gradually to lose strength to the end of the activity.

The point of significance here is that during the early stage of strenuous activity there is a steady loss of eversion muscle strength while at the same time the inversion support of the ankle shows signs of strength gains before loss. These apparent strength differences with decreasing support of the eversion muscle groups and a parallel increase of inversion strength, early in activity, may be a significant cause for the predominance of lateral ankle injury from the standpoint of decreased muscular strength and support.

Significance of the Studys

With the evidence of the Thorndike studies pointing to the predominance of lateral ankle injury in football, with the tibiofibular ligament rating first in predominance and the lateral collateral ligament rating second in occurence, it is evident that the significance of the problem may be traced directly to factual evidence presented here.

Support and protection of the ankle necessarily depends upon the strength of both the muscular and the ligament groups. It is necessary that the combined functional support of both of these structures be maintained at a high level of efficiency to insure stability and protection; one without the other will not give adequate support. Although the ligament structures may be adequately strong, the muscular support is necessary to stabilize the ankles and thus prevent it from being twisted or turned to the point where these less flexible structures will be stretched beyond their normal limitations—resulting in tearing or detachment.

Practical Implications for the Coach and Trainer

From this knowledge of muscular strength losses as a result of vigorous physical activity, it may be concluded that this evidence may have a direct and significant bearing on this problem and should be considered in the preseason conditioning program. The author is not failing to consider the other factors that are possibly contributing to this problem, such as the force of contact, field conditions, twisting in change of direction, etc., but again he wishes to emphasize the fact that strength losses as a result of vigorous muscular activity may be the primary cause.

Preventive Measures

It is suggested that:

1. More stress be given to the use of preventive measures during early season training periods with emphasis on *additional conditioning exercises* to develop lateral muscular support, i.e. progressive resistive exercises which include emphasis on the strength factor as well as the endurance factor. By developing additional strength, as well as endurance, the player will have maximum muscular protection. As a result of this additional conditioning, strength losses will be reduced and a greater degree of strength will be maintained for supportive purposes.
2. In taping, the ankle should be placed in a position of slight eversion thus decreasing the flexibility and reducing the potential of lateral injury. It is also recommended that the preventive exercise program be incorporated along with the method.
3. If the low cut shoe is worn, special emphasis should be given to preventive exercise to build the strength and stability of the supporting musculature and ligaments.

This study has been developed with the intent to contribute to the knowledge of cause and effect of one of the major problems of football injury, and the author sincerely hopes that the evidence presented here will be considered in the training programs of the future so that the athlete will be able to spend more time in the game free from debilitating injury.

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[1]Thorndike, M.D., *Athletic Injuries, Prevention, Diagnosis and Treatment*, Lea and Febiger, Philadelphia.

[2]Varsity Football Squad of the University of Massachusetts, Connecticut, Springfield College, and American International College.

[3]Clarke, H.H., Mathews, D.K., Shay, C.T. "Strength Decrement Indices from Military Marches: Comparison of Army Packs and Army Boots and Shoes—U.S. Army Climatic Research Lab. Quartermaster Corps contract No. DA44-109-1137

[4]Clarke, H.H., *Cable Tension Strength Tests*, Brown-Murphy Co., Chicago, 1953.

[5]Edwards, L.F., Anatomy for Physical Education, The Blakeston Company, Philadelphia, 1934, Part 3, Ch. 12.

SUTURING THE SCHIZOPHRENIC SPLIT

Continued from page 84

attack; rather, it is a procedure of reducing need for this defense and of suggesting alternate explanations for one misinterpretation after another until the whole structure of paranoid projection is gradually weakened.

SUMMARY

In summary, the hypothesis is presented that the schizophrenic process is a progressive maladaptation resulting from a conflict which gives rise to a self-perpetuating eddy of circular activity between cortex and thalamus that amount to a morbid resonance, and that jams the neural circuits normally serving the highest functions, leaving the direction of behavioral responses to lower levels of integration capable only of more sterotyped, inflexible, and defensive adjustments.

Conflict is regarded physiologically as the simultaneous activation of two (or more) neural patterns tending toward discharges which are mutually incompatible. Conflict with developing anxiety presumably reflects a feed-back from cortex to diencephalon. Conflict which blocks neural discharge and results in increasing tension results in increasingly diffuse neural activity which expresses itself in more diffuse thinking.

The conflict may proceed toward healthy resolution, with return to patterned neural activity and effective thinking. On the other hand, the diffuseness may progress to disorganization. Or the conflict may be somewhat reduced by a false resolution contributing toward a paranoid stabilization of the psychosis.

With this hypothesis, methods of therapy for schizophrenia may be classified in four groups. There are those direct attemps to resolve the conflict, which, unfortunately, are not often successful once the schizophrenic break has occurred. There are those methods such as prefrontal lobotomy or electroshock, which attempt a frontal attack on the morbid resonance. There are those, such as milieu therapy, which encourage interest and motivation in constructive activities and seek, thereby, to draw the higher centers into the service of day-by-day adjustment. Two methods have been evolved in the Veterans Administration in recent years, the organized retraining of Dr. Henry Peters and the relaxation and resocialization therapy of Paul Roland. Finally, there are those methods, such as the usual psychotherapy and insulin coma, which endeavor both to reduce the morbid resonance and to increase the adaptive behavior.

The addition of Dr. Peters' methods of graduated problem solving for food reward as the patients recover from the standard treatment of insulin coma would seem very promising, particularly since the value of Peters' methods has been demonstrated on patients far less favorable for treatment than those ordinarily taken for insulin coma.

SOCIAL SERVICE

Continued from page 87

ble dropped in the pond, the collaboration of Social Service and Corrective Therapy created ripples and then ever widening waves of clinical interest in the patient.

Another principle illustrated is "continuity of relationship." The hospital social worker followed the patient during both institutional and community phases. Likewise, the relationship of the corrective therapist with the patient was fully utilized throughout the patient's career in and out of the hospital. Although the patient underwent many vicissitudes he was never lost sight of. Continuity of relationship helped assure maximum treatment.

"From Other Journals"

K. A. POVINS and NANCY SALTER, "Maximum Torque Exerted About the Elbow Joint," *Journal of Applied Physiology*, 7:393-398, January, 1955.

The forearm position has a great influence on relative strength of attempted flexion. This difference must be due to some change in the efficiency or number of the muscles involved, which are primarily the brachialis, biceps, brachioradialis and pronator teres. The brachialis is unaffected by the rotation of the forearm. The biceps and the brachioradialis change their length and mechanical advantage as the arm rotates, these factors to a large extent cancelling each other out. It seems likely that the overall effect is due mainly to changes in the length and mechanical advantage of the pronator teres. Strength and arm volume have a low positive correlation. The mean difference in total arm volume between the right and the left sides in this study was approximately 5%.

PJR

B. GANS, "The Fallacy of the Furred Tongue," *British Medical Journal*, 4897:1146-1147, November 13, 1954.

The belief that the general health of a person is reflected in the state of his tongue dates from the days of Hippocrates but is steadily losing ground in the medical world. The state of the tongue in 150 children was subjected to statistical analysis. There is no connection between a furred tongue and the state of the tonsils, the teeth, the presence of a free nasal airway, the presence of cervical glands, a poor appetite, the action of the bowels, emotional upsets and a variety of other abnormalities.

PJR

"The Health of Athletes," *Journal of the American Medical Association*, 155:1062, July 17, 1954.

A physician is expected to be an authority on the hygienic training of athletes and the health hazards to which they are exposed. Surprisingly little has been written on the subject. About the only valid conclusions that can be reached at present are that infections are more important as a cause of cardiac disease than exercise, that exercise even when strenuous will not damage a normal heart, that athletes with a heavy body build have a lower life expectancy than those with a lighter build regardless of the type or extent of their participation in sports, and that the term "athletic heart" should be dropped because it is used with a wide variety of meanings to describe a condition that probably does not exist.

PJR

"Freedom in Mental Hospitals" *The Lancet* XIX:964-966, November, 1954.

Four hospitals with different degrees of freedom are described. At Warlingham Park, Dr. T. P. Rees the physician-superintendent has been a pioneer. In this 1020 bed hospital all but 2 of the 23 wards have been open for the last twelve years.

At Nottingham City (Mapperley) Hospital, Dr. Duncan MacMillan has kept the doors open for the last two years in this 1100 bed institution. The doors are open day and night.

In the Dingleton Hospital. Melrose with 418 beds, Dr. G. M. Bell unlocked the doors gradually, the process having started four years ago. Some large hospitals are built on a villa principle. For instance at Dumphries, the Chrichton Royal Hospital with a population of 1300, has 19 of the 35 wards fully open, the others are sometimes open and sometimes locked.

Besides the unlocked doors there are other features common to the mentioned hospitals. Nurses are thankful not to have to sustain the incompatible roles of nurse and gaoler. Paranoid patients are no longer interested in escaping, moreover they seldom talk about their delusions and seem to have lost most of their hallucinations. A great advantage is that the new freedom discovers the real illness, uncomplicated by symptoms artificially produced by confinement, frustration, and resentment, which are usually taken to be part of the psychosis. As to programs there is a full program of activities.

The only serious mishaps reported are that one patient committed suicide by swallowing too many aspirin tablets and in another hospital two psychopaths obtained a car by false pretenses before the police apprehended them.

J. T.

J. L. BLONSTEIN AND EDWIN CLARKE, "The Medical Aspects of Amateur Boxing," *British Medical Journal*, 4903: 1523-1525, December 25, 1954.

Boxing is a healthy form of physical training. In some cases is may be a suitable outlet for psychopathic traits. Nose bleeding is the commonest injury and plugging with adrenalin soaked cotton-wool may be needed for severe cases. The use of styptics or nasal stimulants is not allowed. Cuts of the supraorbital ridges and zygomatic area are treated with sterile plaster dressing, and thread sutures where necessary. This method is entirely satisfactory, although Continental officials claim equal success without the use of sutures. The early aspiration or evacuation of a hematoma of the auricle will avoid cauliflower ears. Sprains of the metacarpo-phalangeal joint of the thumb are best treated by strapping, early movements. and later by short-wave diathermy. In the case of fractures, splints are applied and the boy is sent to the hospital. A boxer sustaining a fractured jaw is permanently suspended. Head injuries are a direct product of boxing and not an accident as in all other sports. One of the most important tasks in the medical control of boxing is an attempt to avoid as many as possible of the complications of the head injuries inevitably sustained by the boxer. Boxers who are "knock-out prone" are permanently suspended. It is possible that the EEG can detect incipient brain damage before clinical features become evident, but changes with age are encountered and it is difficult to draw conclusions in an individual case.

PJR

"Flying Saucers," *Canadian Medical Association Journal*, 72:461, March 15, 1955.

In a discussion of flying saucers before the Academie Nationale de Medecine in Paris, Heuyer pointed out that for successful propagation of a collective psychosis three elements are necessary: (1) a false idea; (2) fear; (3) certain conditions in the group and its environment. The conditions in the human group could scarcely be more favorable for propagation of a psychotic idea. It would be of great interest to find out why certain ideas take root and spread. Studies of group delusions are under way on a small scale.

PJR

"The Ideal Exercise," *The Medical Journal of Australia,* I:113-114, January 22, 1955.

For an exercise to confer the greatest benefits it should demand strength, skill and speed. Dumbbells require strength; weight-lifting strength and skill; billiards and rifle shooting only skill; bowling and croquet require little strength. Football, tennis, lacrosse, cricket and baseball require a fine blend of all three. Competition stimulates the performer and begets a pleasurable excitement. Hormonal and nervous cooperation increases circulatory efficiency and muscle nutrition. Team work has a moral and social significance. This is absent from golf. Team work should be prescribed for school children rather than solitary games of skill. An element of danger can be of high significance in enhancing the good effect on the moral nature of the performer. In middle age the heart lacks the resilence it possesses in youth, so the exercise must fit the circulatory capacity. Every age is better for some exercise; there is danger in the later years of the muscular and circulatory systems being given too little to do. In tennis and fencing the action given the right arm often results in a marked departure from bilateral symmetry in the thorax. The tennis player and the bowler in cricket often display a spinal curvature. This consideration is not given in sport the attention it deserves.

PJR

H. H. BENTALL, *et al.,* "The Blood Groups in Relation to Peptic Ulceration and Carcinoma of Colon, Rectum, Breast, and Bronchus," *British Medical Journal,* 4883:315-321, August 7, 1954.

In a study of cancer of the stomach, blood group A was significantly commoner in patients than in controls. Blood group O was strikingly high in patients suffering from peptic ulcer. There was no significant difference in sex proportion or in age between the blood groups.

L, A. PIKE and A. M. DICKENS, "ABO Blood Groups and Toxaemia of Pregnancy," *British Medical Journal,* 4883: 321-323, August 7, 1954.

As compared with the non-toxaemic patients in a group of 3,651 admissions to a maternity hospital, the toxaemic patients showed a significant excess of women with blood group O.

R. M. MCCONNELL *et al.,* "Blood Group in Carcinoma of the Lung," *British Medical Journal,* 4883:323-325, August 7, 1954.

No significant difference was found in the ABO blood group distribution of 777 cases of carcinoma of the lung when compared with those of 1,000 blood donors in the same area. It appears that rhesus-negative people are slightly less likely to develop lung cancer than are those who are rhesus- positive.

PJR

RENE J. DUBOS, "Biochemical Determinants of Infection," Address delivered at the New York Academy of Medicine, October 18, 1954.

Pathogens persist in the tissues of the host without causing detectable symptoms. Physiological misery tends to activate latent endemic infections. This does not seem to result from loss by the host of humoral or cellular immunity nor from an increase in the virulence of the pathogen. In all likelihood one of the reactions which decreases the resistance of the host is an alteration in the physiochemical environment in the tissues involved. The inflammatory zone differs biochemically from the normal tissues and body fluids. The biochemical activities of the tissue vary with the metabolic state of the individual. There is a general belief that malnutrition increases susceptibility to infectious diseases, but it is not easy to find clinical or experimental evidence to support this. In many cases the nutritional regimen alters resistance to infection indirectly by its effect on the metabolism. It seems likely that in acute but short periods of fasting the infection-enhancing effect is due to production or accumulation of metabolites which favor the activities of microorganisms. The metabolic determinants of resistance to infectious agents almost certainly differ from, and may be independent, of those which control normal physiological behavior.

PJR

MURRAY B. FERDERBER and GERARD P. HAMMILL *"An Effective Comprehensive Program for Geriatric Patients"* J.A.M.A. 157:5:407-413, January 29, 1955.

In the Allegheny County Institution District with hospitals at Woodville and Mayview, Pa., a geriatric program was instituted. The program was difficult to start but when one hemiplegic patient, confined to bed and wheelchair for four years, stood and took a few steps, the most difficult obstacle of resistance vanished.

Some patients were unable to ambulate. others were incontinent by habituation, and many of them were resigned to an existence of chair and bedfastness, lingering in the compromise between living and dying.

Twelve of the most feeble patients were transferred to a large, airy, light bay. Most of them had forward-flexed heads from the sagging bedsprings, severe obesity, and extremely poor positioning. After having a pulley arangement rigged up to their beds, patients were encouraged to exercise the legs and gradually increase the time for sitting up in bed. Also bedpan training was instituted. Where formerly eleven pieces of linen per patient per 24 hours was needed for exchange the daily average of linen exchange dropped to two pieces after four months time.

Gradually, the patients themselves look the initiative to exercise. The next step was to correct deformities through the use of splints, stretching, pulley therapy and surgery. Simple equipment for standing and walking was added to aid the patients in their ambulation exercises. Patients formerly confined to bed progressed to the point that they could shuffle or limp to the dining room, a place they never had seen before. The restoration had no ill effect on blood pressure and no death resulted during or as the result of the program.

The program progressed from the special room to the many wards. The presence of equipment on these wards challenged many an oldster to participation. Some results of the program are: 23 percent to home and/or gainful employment; 45 percent ambulatory within the institution; 12 percent subjectively improved; 20 percent no tangible improvement.

J.T.

"Brain Injury in Boxing," *British Medical Journal,* 4903: 1535, December 25, 1954.

Concussion is regarded as a disturbance of brain function without anatomical change and appears to be particularly transient when resulting from a head blow in the ring. Nevertheless out of 24 amateur boxers who had been knocked out, 16% showed abnormalities suggesting organic brain damage. Trivial head injuries which produce no concussion may at times be followed by subdural haemorrhage, often with fatal results. There is no doubt that deterioration of personality and intellect can occur as a result of a career in the ring, and it seems likely that it is due to repeated head injury. If boxing is to remain high in public esteem, it is essential that the authorities who control both amateur and professional contests should act on the recommendations given by their medical advisers in order to minimize the risks of brain injury.

PJR

J. WOOLNOUGH, "Tennis Heel," *The Medical Journal of Australia,* II:857, November 27, 1954.

Tennis heel results from repeated trauma. Unaccustomed use of the feet on hard surfaces may be the precipitating factor. The lesion occurs at the posterior insertion of the plantar fascia and the plantar muscles into the anterior edge of the calcanean tubercles. more commonly the medial one. Treatments of value include insertion of a sponge rubber pad under the heel, building up the heels of the shoes half an inch, the use of a solid rubber heel on the shoe and the oral administration of cortisone. Adhesive strapping to support the longitudinal arch and relieve the tension on the plantar soft surfaces affords relief of symptoms if the daily activities are limited to walking or standing but does not affect the duration of the condition.

PJR

DICKSON W. RICHARDS, "Discussion of Starling's Law of the Heart," *Physiological Reviews*, 35:156-160, January, 1955.

Starling's Law of the heart contains three propositions: (1) in cardiac muscle the mechanical energy set free on passage from the resting to the contracted state depends on the length of the muscle fibers; (2) with increasing fiber length, or diastolic volume, this energy of contraction increases, up to a certain optimal length of fiber, but then with further lengthening the energy of contraction diminishes; (3) this simple formula is applied basically to the isolated mammalian heart. In moderate exercise there seems to be smaller heart size, greater emptying, increased stroke output, increased rate, increased venous pressure. Thus in moderate exercise in man Starling's law appears to be obscured by other effects. In the intact animal Starling's law appears usually in (1) quiet states of the cardiovascular apparatus, relatively free from nonmechanical stimuli, or (2) in states of severe or extreme stress where nervous and hormonal effects are no longer in control.

PJR

"Artificial Respiration and Carbon Dioxide," *British Medical Journal*. 4911:468-469, February 19, 1955.

Haggard and Henderson in 1921 advocated the use of 5% CO_2 with O in conjunction with artificial respiration. Since then cylinders containing this mixture of gases have been widely used. When a healthy man breathes 5% of CO_2 ventilation of the lungs increases greatly. When a patient has been exposed to narcotics or deprived of O, the earliest breath-regulating mechanism to be impaired is the ability to respond to increasing concentrations of CO_2. By the time artificial respiration becomes necessary the CO_2 tension is already abnormally high and the pH of arterial blood may be abnormally low. Addition of 5% CO_2 will cause the alveolar CO_2 concentration to rise to 15% or 20%, and at this level CO_2 is poisonous. CO_2 should not be administered with O in the resuscitation of subjects receiving artificial respiration.

PJR

WE INTRODUCE

Our Next President

By coincidence, the chairman of this year's APMR convention is also President-elect of the organization and will assume his new duties immediately after this year's meeting. However, hard work and double duty are no strangers to Frank Deyoe who has compiled an outstanding record both in the association and in his chosen profession of corrective therapy during the past eight and a half years. During this very productive period, Frank served on the Representative Assembly for two years, acted as chairman of the Constitution committee, was elected and re-elected President of the New England chapter, served two terms as national Vice-President and last year acted as an assistant to the President in his role of President-Elect.

Despite this tremendous service to the organization, Frank still found time to co-author a textbook on CT ("Ambulation: Physical Rehabilitation for Crutch Walkers" with Dening and Ellison) as well as several articles appearing in professional journals. He progressed from therapist to supervisor to assistant chief to chief of the corrective therapy department at Cushing during the period from 1946 to 1953 and has, for the past two years, held the position of Chief, Corrective Therapy, at the VAH in West Roxbury, Mass. With two other therapists under Dr. William Lanigan, Frank helped found the Medford Ambulation Clinic, a part-time center for civilian disabled and for several years he has assisted in the evening rehabilitation program at the Boston City Hospital under Dr. Donald Munro. Today, he is considered one of this country's real experts in the functional rehabilitation of paraplegics and other seriously disabled neurological patients.

Frank Deyoe was born in Gloversville, N. Y. and attended high school in Kinderhook where he was graduated in 1938. He received his B.S. in Health and Physical Education at Springfield College in May, 1942 and entered the Marine Corps shortly thereafter. Following basic and Reserve Officers training, he went overseas as a lieutenant in the 4th Marine Division and served in campaigns at Roi - Naumur, Saipan, Tinian and Iwo Jima for which he received the Bronze Star with V. and the Purple Heart with gold star. Upon his return to the states he was assigned as an instructor in Reserve Officer's School. He has continued to serve in the Reserve since his discharge and holds the rank of Major at the present time.

After the war, Frank taught physical education in his home town for a few months, but when an opportunity to enter the field of rehabilitation presented itself, he accepted it immediately and became a civilian corrective physical rehabilitation instructor at the Cushing Army Hospital which was converted into a veterans hospital in September, 1946. In addition, Frank took additional training in rehabilitation as part of a graduate program at Springfield. In 1947, he married the former Rita Ritzel of Wilkes-Barre, Pa. who was then serving in the Army as a physical therapist. The couple now reside in Saxonville, Mass. and have two children, Douglas, age 7, and Diane.

Editorials

THE TIMETABLE REVISED

With the Salk vaccine occuping primary space in the nation's newspapers, other revolutionary medical discoveries, in the field of mental disease, have received but scant notice. However, medical and psychiatric journals are steadily building up a vast literature embracing clinical evidence which supports the thesis that two drugs, reserpine and chlorpromazine, have a profund effect in reversing some of the processes involved in certain types of mental disease.

Because of the ease of administration and lack of significant side-reactions, the drugs are being widely used in nearly all of our mental hospitals today and the growing mass of evidence from a multitude of sources points to success on a scale scarcely dreamed of a year ago.

Particularly in the case of disturbed, aggressive types of schizophrenics have clinicians obtained dramatic results. A lessening of tension and an apparent reintegration of personalities have been achieved in a majority of cases reported. Although psychiatrists are cautious in applying the term "cure" to the new drugs, there is general agreement that a majority of patients now being treated show a marked decrease in the symptomatology of mental disease thus making them amenable to conventional psychotherapeutic processes. The general effect of the drugs to date has been for an unprecedented demand for more psychotherapy coupled with a concomitant acceleration in all other services auxiliary to psychiatry.

The significance of the new drugs for the field of rehabilitation in the mental hospital seems clear. There is evidenced a tremendous upsurge in demand for all types of PMRS activities and, in many cases, a need for added facilities and additional personnel to meet the new need has already become apparent. The outlook for an appreciable increase in the total number of mental patients rehabilitated as a result of this accelerated program appears to be very bright indeed.

CHRONIC ILLNESS – A CHALLENGE

To a large extent the future is determined by man's present efforts and his vision. The cornerstones of tomorrow are being laid today and man, the architect, must take the responsibility for assaying his resources and projecting his needs if the future is to represent an improvement over the past.

Planning in any field of human welfare thus become a tremendous responsibility entailing not only the mere study of a problem but also the implementation of coordinated plans to realize long-term objectives.

Within areas of social welfare, it is especially important that the future needs of our citizens be plotted as accurately as possible and that the addition of new facilities be based primarily on scientific forecasts of future needs. The construction of new schools, highways, housing facilities and hospitals, for example, should reflect an acceptance of this concept and responsibility.

It is noteworthy that one agency dedicated to the study of one of our most important health problems has seen fit to adopt a series of conclusions and recommendations for the care of the long-term patient which, if adopted, can serve as a blueprint for the future. We refer to the report of the Commission on Chronic Illness which has recently been released to propound a realistic approach to the solution of what seems certain to be one of our major health problems in the years to come.

The commission's report encompasses all aspects of the problem of the long-term patient and the approach appears to be extremely lucid in stating clear-cut principles. A straight-forward approach to the rehabilitation problems of this type of patient is stated in such terms as: "Rehabilitation is an innate element of adequate care and properly begins with diagnosis. It is applicable alike to persons who may become employable and to those whose only realistic hope may be a higher level of self-care. Not only must formal rehabilitation services be supplied as needed, but programs, institutions and personnel must be aggressively rehabilitation-minded." Throughout the report are references to rehabilitation services in hospitals and institutions and the commission's concern that this type of program be an integral part of a dynamic program.

In regard to the mental institution, the commission states, "every mental hospital should have an adequate therapeutic program, the primary goal of which is rehabilitation of the patient and prompt restoration to community life as soon as the need for social restraint is over."

As new facilities are constructed, new programs are instituted, and monies are allocated for public and private financing of hospitals and institutions, it is to be hoped that united efforts in meeting some of

the problems of chronic illness can be met by wide adoption of the recommendations of this commission.

IN TRIBUTE

The role of the President of most organizations is not usually so well-defined as to preclude initiative, invention, and resourcefulness. Despite the obvious need for carrying on routine duties, the elected head of any organization usually possesses the latitude to give his administration a character and individuality which emanates from his own personality and qualities of leadership.

That Louis F. Mantovano possesses these qualities in abundance can scarcely be denied by anyone familiar with his efforts in behalf of the Association for Physical and Mental Rehabilitation during the past year. Mr Mantovano brought to the office of President a capacity for hard work, steadfastness of purpose, objectivity and a clear insight into the problems confronting the profession. For the past year he has given almost exclusively of his free time to the association and by his own example, has aided many others in performing functions "beyond the call of duty".

Book Reviews

"Adapted Physical Education," by Arthur S. Daniels. (New York: Harper & Brothers, 1954. 538 pp. $6.00)

This book is written for the teacher of corrective physical education in school systems, not for those working in hospital situations. However, there is little difference in underlying philosophy. Probably almost any child well enough to go to school can profit from participation in proper physical education. The A.A.H.P.E.R. recommendation that similarities must be stressed rather than deviations and abilities rather than disabilities is accepted by Daniels. He agrees with Lamb, Rathbone and Karpovich that the role of the physical educator is to give corrective exercise and conduct activities under the direction of qualified doctors for individuals with physical and mental defects or deficiencies or impaired health. With these principles corrective therapists are in full accord. About half of the text is devoted to a detailed consideration of problems of organization and administration, including acquatics and camping. The other half deals with the treatment of such specific medical problems as body mechanics, amputations, rheumatic fever and cardiac conditions (many will be surprised to find progressive resistance exercises advocated for the latter under certain conditions), cerebral palsy, epilepsy, poliomyelitis, visual and auditory handicaps and various other ailments. An impressive array of references is cited, but many of them are to older editions of standard texts. The reviewer feels that as a matter of policy all such references should be to the most recent editions. *Adapted Physical Education* is the most complete book in its field. It is highly recommended for use as a text book in college courses in corrective physical education and as a source book for those already teaching in schools.

PJR

"Sports Injuries: Prevention and Active Treatment," by Christopher Woodard. (London: Max Parrish, 1954. 128 pp. Available from Sports College, Toronto, Canada, $2.75)

This book should be studied by everyone concerned with the training of athletes, if only for the reason that the concepts it presents are so different from those prevailing in this country. Written by an Honorary Medical Consultant to the 1948 and 1952 British Olympic Teams, himself a former trackman at Cambridge, it stresses the principles that immobilization and taping should be avoided in all soft tissue injuries. The important thing is to help the athlete restore his balance. The immediate treatment for a torn muscle is to get the man moving. In a chapter entitled "The Danger of Strapping" taping is derided as a "fantastic" idea from America. Equally startling are the description of staleness as especially common in rowing due to the habit of changing coaches at regular intervals during the rowing season so that the athlete becomes confused by variations in methods and opinions, and the comment that runners are said to avoid swimming because it stiffens their muscles. Active treatment, as described by Woodard, consists principally of manipulation and exercise in cases not requiring medical intervention. Progressive resistance exercises are stressed. The author speaks of lifting a barbell three times one's own weight overhead as being the equivalent of a ten-second hundred-yard dash; it appears to the reviewer that it would be more comparable to nine-seconds. On p. 39 he refers to caffeine as increasing the reaction time; the text makes it clear that this word should be "decrease." This text will probably prove highly controversial and will likely receive rather trenchant criticism from American trainers—which is all the more reason to read it.

PJR

"A Dictionary of Pastoral Psychology," by Vergilius Ferm et al. (New York: Philosophical Library, 1955. 336 pp. $6.00).

The authors state that the dictionary is designed as "a treatment of the subject of psychology in those phases which have theoretical or practical bearing on the work of the minister." Unfortunately, they failed to decide whether they were writing a scientific manual or an informal book of advice to pastors, perhaps because there is not a single psychologist, psychiatrist or psychonanalyst among the editors. Some of the terms defined, such as "Addison's disease," are purely medical. "Alcoholics Anonymous" and "Occam's razor" are headings one does not anticipate finding at all. Nearly a page is given over to "occupational fallacy: a very common psychological fallacy . . . " From the definition this turns out to be the old logical material fallacy of *argumentum ad verecundiam*. A fine example of this fallacy will be found in the very unsatisfactory article on psychical research. References are lacking where needed most. The article on Jung does not even mention his classic "Modern Man in Search of a Soul." In view of the fact that much space is given to religion and there are four Protestant divines and one Rabbi among the authors, the lack of a Catholic representative raises a question as to whether the tenets of that body have been correctly presented. This becomes serious when one finds what even a layman recognizes as a definite misstatement of elementary fact about Catholic practices and it is noted that other subjects are discussed only from a purely sectarian standpoint, i.e. "hospital chaplain, the (Protestant)." The articles dealing with therapy and counseling apparently contain no reference to the non-directive technique: Rank's name is not even mentioned. Neither are those of Sullivan or Horney. James and McDougall appear to be the favorite authorities, judging by the large number of references to them. Some of the material is written in the first person and anecdotes and advice are freely scattered through the text. The book perhaps is of the greatest service in demonstrating that in the preparation of a dictionary great care should be given to the selection of editorial personnel. In this case the care given was not great enough.

PJR

"Relaxation is Easy," by Lloyd Percival. (Ontario, Canada: Sports College, 1955, 42 pp. $1.00)

Percival divides tension into two types: affective, caused by anxiety, and co-ordination. resulting from incorrect use

of the muscles. Either lowers efficiency, but may be helped or even cured by controlled relaxation. His technique is to teach the reader to recognize tension and then practice drills designed to eliminate it. He suggests that co-ordination tension is related to staleness. There is no doubt but that unnecessary tension is highly damaging to the human organism, and it seems unfortunately true that the conditions under which most of us live tend increasingly toward the development of these tensions. Not only those connected with the training of athletes, but business and professional people generally will find Percival's book a simple and interesting introduction to the subject of relaxation.

PJR

"The Causes and Treatment of Backwardness" by Sir Cyril Burt. (New York: Philosophical Library, Inc., 1953. 128 pp. $3.75).

Much of the material included in this volume is either derived from, or based on an earlier treatise by this same author.

In spite of revisions, deletions and additions the ensuing result is notably lacking in the dynamic emphasis needed in contributions directed toward the areas of backwardness in our social system.

Teachers, educators, psychologists and perhaps research workers may find Dr. Burt's book a somewhat adequate source of reference, but beyond that because of its limited scope, may need recourse to more provocative and dynamic texts.

Research in our treatment centers for the backward and retarded place strong emphasis on emotional factors as opposed to the rigid scientific orientation of Dr. Burt's material.

It is felt by the reviewer that the amount of statistical comparison considerably limits the author's premise and relegates this contribution to a status that may be regarded as elementary by more progressive workers in this field.

IF

"Psychoanalysis: Practical and Research Aspects," by Willi Hoffer. (Baltimore: The Williams & Wilkins Co., 1955, 102 pp. $3.50) (The Abraham Flexner Lectures, Series Number Twelve)

"Psychoanalysis," says the author, "is not only a method of treatment. but a method for research into disordered minds." The purpose of the psychoanalytic interview is to allow the patient the fullest degree of mental relaxation. This comes to a halt when unconscious resistances block its expression. These are removed by insight into their function or meaning. Child psychiatry has developed the play technique as a method of investigation. It is predicted that soon we shall have to discuss such factors as the neural counterpart of conflict and repression, but the research potentialities of psychoanalysis can be proved only when the present mass demand for psychotherapy has been saturated.

The book is, of course, not designed for corrective therapists, but those who work with children will find Chapter IV, dealing with preparing children for medical treatment, worth careful study. Similar considerations presumably apply to adults; it would be helpful if Dr. Hoffer would give us the benefit of his thinking in this respect. The text is interesting and notably free from professional jargon. So far as the research situation is concerned, the present condition as described by the author seems to offer little prospect of work which will satisfy the criticisms made by Altschule in his "Bodily Physiology in Mental and Emotional Disorders." (Reviewed here July-August, 1954).

PJR

BOOKS RECEIVED

"An Outline of Scientific Criminology," by Nigel Morland (New York: Philosophical Library, 1950, 285 pp. $4.75).

"The Lil Abner Official Square Dance Book." by Fred Leifer (New York: A. S Barnes and Co., 1953, 127 pp. $1.50).

Chapter Activities

The Ohio-Kentucky Chapter of the Association for Physical and Mental Rehabilitation met in conjunction with the Ohio Valley Chapter of the American Association of Rehabilitation Therapists on April 30 at the VA Hospital in Lexington Kentucky.

Morning and afternoon sessions were devoted to clinical topics which were followed in the afternoon by business meetings of each chapter. Dr. A. P. Del Cort, Manager of the VA Hospital at Lexington, gave the welcome address. He presented seven definitions of rehabilitation, each of which suggested possible developments in different services. He stressed the importance of growth, pointing out that research, as he sees it, is not something extra that the therapist is expected to do occasionally after duty hours but is, or should be, constantly carried on as a vital part of the work day program.

He was followed on the program by Dr. C. W. Hackensmith, Professor of Physical Education of the University of Kentucky, in which he discussed the rehabilitation program at the University.

In the afternoon session Dr. Charles D. Feuss, Manager of Eastern State Hospital in Lexington, compared the activities in state hospitals with those in VA hospitals. Dr. Walter Gysin, Chief, Professional Services, VA Hospital, Lexington, made an appeal for the different therapies to strive for a higher quality of coordinated treatment. He urged that the patient constantly be thought of as a human being rather than as a "case" with a series of check marks indicating attendance.

At the Chapter business meeting we were fortunate in having Association President, Lou Mantovano, in attendance. He discussed the scholarship fund and reported on the work he had been doing for the Association. The Chapter voted to donate $25.00 to the scholarship fund. The next meeting of the Chapter will be held in the fall at Ohio State University in Columbus, Ohio with Mr. George Jurcisin, President-elect, Arthur Landy and Charles Castle in charge of making arrangements.

News and Comments

TRAINERS CLINIC AT PEPPERDINE.

The Billig-Allen-Morehouse Annual Trainers Clinic for men and women Physical Education teachers and coaches will be held this summer, June 27, 28 and 29 at Pepperdine College. California. The registration fee is $20.00 and one unit of college credit can be obtained.

The staff this summer will include: Harvey E. Billig, Jr., M.D., Director, William Allen, M.D., Laurence E. Morehouse, Ph.D., John M. Cooper, Ed. D., John Sellwood, Ed. D., Robert L. Brennau, D.S.C. Evelyn Loewendahl, P.T., M.A., Loree Lyon, R.N., Joseph Mongano, A.B., C.T.

Apply to the Registrar at Pepperdine College, 1121 West 79th St., Los Angeles, California for registration or further information.

GIVE TO THE

SCHOLARSHIP FUND!

VA STUDY SHOWS GAINS IN VOCATIONAL TRAINING

Veterans treated for mental and nervous illnesses have made an outstanding record of readjustment to gainful life through vocational training, a Veterans Administration study revealed today.

The study disclosed that 93 out of every 100 of these rehabilitated veterans hold jobs, and nearly all of them like the kind of work they are doing.

Of the employed veterans, 84 out of 100 are using skills they learned during training.

The veterans, at the time of the survey, were earning an average of $70 a week — $15 above the weekly income of non-veterans in the same age group.

The VA study showed that of the 600,000 disabled World War II veterans who received vocational rehabilitation training over the past 12 years, approximately 150,000 had mental or nervous disorders.

This constituted the second largest group of disabled trainees, surpassed in number only by those with orthopedic disabilities such as arm or leg amputations.

VA said the achievements of veterans with mental and neurological disorders are all the more remarkable, in light of the fact that they have, on the average, higher disability ratings than other handicapped veterans who have trained.

According to VA records, 65 percent of the veterans treated for mental illnesses had disability ratings of 20 percent or more In other illness categories only 50 percent were rated 20-percent-or-higher.

The VA study took a closer look at the 93 out of 100 rehabilitated former mental and neurological patients who were holding jobs and found that 12 percent were working part-time. About 39 percent had changed their jobs one or more times since completing training.

These percentages, VA explained, do not differ appreciably from the experience of all disabled veterans who have taken vocational training. Over-all, 9 percent were part-time workers and 37 percent had switched employment.

In the matter of job satisfaction, too, there was no marked difference in attitude between those with mental or nervous disorders and all other handicapped trainees.

Of those with mental or nervous disorders, 64 percent stated they liked their work "very much," and 30 percent "fairly well." Of all other handicapped trainees, 71 percent said "very much" and 27 percent "fairly well"

There was only a slight difference between the two groups as to the use they were making of skills acquired through their training. Eighty-four out of 100 veterans with mental and nervous disabilities were using training skills on the job, compared with 87 out of 100 of all the disabled.

In spite of the fact that more veterans with previous mental or neurological ailments were working part time, they were averaging $70 a week, only $2 less than the $72 averaged by all the rest.

The study showed that 56 percent of veteran-trainees with mental and nervous ailments had completed their courses and officially were declared rehabilitated. Nevertheless, nearly half of those who had failed to go all the way through rehabilitation training were able to get jobs utilizing the skills and knowledge acquired in the training they had received.

The rate of rehabilitation of all disabled veteran-trainees was appreciably higher — 62 percent, VA said.

Following are other highlights of the survey, as revealed by the VA:

Seven out of every ten rehabilitated veterans with mental and neurological disabilities were between 20 and 30 years old. At the time they entered training 25 percent had never progressed beyond grade school, 60 percent had gone to high school and 15 percent had had some college training At the time they finished training, 77 percent of the veterans had at least one dependent and family responsibilities that go along with dependency.

A far greater proportion of veterans with mental or nervous disorders attended college, than did veterans with other disabilities — nearly one-half of the former compared with one-fourth of the rest.

Association President Louis F. Mantovana with Gen. Melvin J. Maas and Dr. William Middleton at an organization reception in Jan. at Washington, D.C.

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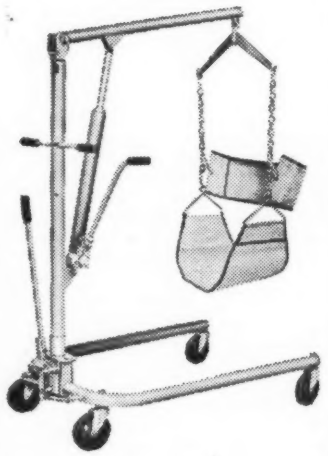

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AMENDMENT TO THE CONSTITUTION OF THE ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

The Board of Governors in a mail vote have approved the adoption of the amendment to Section 3 of the By-Laws of the Association for Physical and Mental Rehabilitation.

b. Annual membership dues shall be considered due on July 1 each year on a fiscal year basis.

c. In order to effect the change in date of membership dues on an equitable basis, there shall be published in the Journal and Newsletter for three (3) consecutive issues each, a chart and abstract explaining and showing the pro-rata basis for payment of said dues for the various expiration dates and the different types of membership.

The amendment goes into effect immediately and all the members will be expected to pay the amount shown on the table below by July 1, 1955. Those not complying within sixty days (by September 1, 1955) must pay the delinquency assessment of one dollar. Those who do not renew their active membership within six months of due date, January 1, 1955 and each year thereafter, will be dropped from the official roster and must apply as new members under the constitution to be readmitted.

TABLE SHOWING PRO-RATA PAYMENT OF DUES

DATE DUE	ACTIVE	PROFESSIONAL	ASSOCIATE
April 1955	12.50	6.25	5.00
May 1955	11.67	5.83	4.67
June 1955	10.83	5.42	4.33
July 1955	10.00	5.00	4.00
Aug. 1955	9.17	4.58	3.67
Sept. 1955	8.33	4.17	3.33
Oct. 1955	7.50	3.75	3.00
Nov. 1955	6.67	3.33	2.67
Dec. 1955	5.83	2.92	2.33
Jan. 1955	5.00	2.50	2.00
Feb. 1955	4.17	2.08	1.67
Mar. 1956	3.33	1.67	1.33
Apr. 1956	2.50	1.25	1.00
May 1956	1.67	.84	.67
June 1956	.83	.42	.33

It is of the utmost importance that all members cooperate in complying with the new amendment. We must keep our association on a sound financial basis and its operation on a high scale of efficiency. LET EVERYONE OF US BE ON TIME AND SEND OUR DUES TO THE MEMBERSHIP CHAIRMAN!

STANLEY H. WERTZ, *Secretary*

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Peacock Surgical Co., Inc., 1235 Texas Ave., Shreveport, Louisiana ..... Day 3-5276—Night 7-4910
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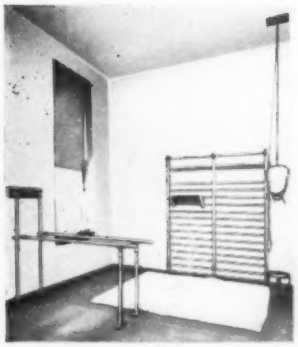

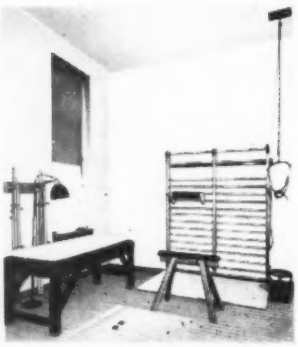

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